11-15-68

# ERIC REPORT RESUME

| ERIC ACC. NO. | CH ACC. NO. | P.A. | PUBL. DATE | ISSUE |
|---|---|---|---|---|
| ED 042 064 | AA 000 602 | 24 | 15 Jul 70 | RIEJAN71 |

IS DOCUMENT COPYRIGHTED? YES ☐ NO ☒
ERIC REPRODUCTION RELEASE? YES ☐ NO ☒
LEVEL OF AVAILABILITY I ☒ II ☐ III ☐

AUTHOR
Filep, Robert T.

TITLE

A Study of the Impact of Research on Utilization of Media for Educational Purposes. Final Report.

| SOURCE CODE | INSTITUTION (SOURCE) |
|---|---|
| BBB01506 | Institute for Educational Development, El Segundo, Calif. |
| SP. AG. CODE | SPONSORING AGENCY |
| RMQ66000 | Office of Education (DHEW), Washington, D. C. |

| EDRS PRICE | CONTRACT NO. | GRANT NO. |
|---|---|---|
| 1.25;13.75 | OEC-0-9-420246-3462(010) | |

| REPORT NO. | BUREAU NO. |
|---|---|
| | BR-9-0246 |

AVAILABILITY

JOURNAL CITATION

DESCRIPTIVE NOTE

273p.; Sponsored by NDEA Title VII 1958-1968

DESCRIPTORS

Educational Change; *Educational Legislation; *Media Research; *Instructional Media; *Federal Legislation; *Research Methodology; Information Dissemination

IDENTIFIERS

National Defense Education Act (NDEC); Title VII

ABSTRACT

In this study of Title VII, the research and dissemination activities carried out between 1958 and 1968, the educational advances and changes made , and the strengths and weaknesses of the administrative procedures are investigated, analyzed, researched, and assessed. Activities carried out in the conduct of the study were: (1) thorough research and analysis of the literature and similar data on Title VII; (2) on-site observation of selected institutions where a number of studies had been conducted; (3) distribution and evaluation of field and mail interviews of project directors and other personnel associated with Title VII; and (4) convening an advisory group to assist in formulating assessment guidelines and recommendations for future policies. The report includes discussions of the following topics: legislation, expenditures of monies, Title VII impact on university media departments and university related organizations, results of journal and convention program reviews, research methodology, the impact of Title VII on five educational media, the foundations and media, results of a survey and questionnaire, administrative and management analysis, and past experience as a guide in future programs and legislation. For overview of this document see ED 042 065. (DB)

ED 042 064

OE-7-0246
PA 24

A STUDY OF

# THE IMPACT OF RESEARCH ON UTILIZATION OF MEDIA FOR EDUCATIONAL PURPOSES

SPONSORED BY

NDEA TITLE VI

AA 000 602

## PROJECT ADVISORY COMMITTEE

R. Ann Davis
Director of Educational Media
Virginia Beach Public Schools

John C. Honey
Vice President for Governmental Affairs and Research
Syracuse University

Sidney P. Marland, Jr.
President
Institute for Educational Development

William J. Paisley
Director, ERIC Clearinghouse for Educational Media
Stanford University

Robert E. Stake
Professor of Educational Psychology and Associate Director
Center for Instructional Research and Curriculum Evaluation
University of Illinois, Urbana

Donald White
Executive Vice President
National Audiovisual Association

## SENIOR CONSULTANTS

C. Ray Carpenter
Research Professor of Anthropology and
University of Washington

Robert M. Gagné
Professor of Educational Research
The Florida State University

Wilbur Schramm
Director, Institute for Communication Research
Stanford University

## U. S. O. E. LIAISON TO PROJECT

Adolph J. Koenig
Chief, Organization and Administration Studies
Branch/DHEE

Andrew R. Molnar
Chief, Instructional Materials and Practices
Branch/DHEE

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

A STUDY OF

# THE IMPACT OF RESEARCH ON UTILIZATION OF MEDIA FOR EDUCATIONAL PURPOSES

SPONSORED BY

## NDEA TITLE VII 1958-1968

**FINAL REPORT**

Robert T. Filep

United States Office of Education
Contract No.
OEC-0-9-420246-3462(010)

July 15, 1970

Institute for Educational Development

## ACKNOWLEDGEMENTS

The undertaking of a project such as this requires, by its very nature, the commitment and concern of many people.

Every research project should be as fortunate in its Advisory Committee and senior consultants, all of whom exhibited dedication to their task and a composite wisdom. Their perceptions and expertise permeate the substance and spirit of this report, and to a certain degree suggested the Modus Operandi for this effort.

Senior consultant Wilbur Schramm collaborated with the project director in writing a separate shorter report which provides an overview of this document (Filep, R. T. and Schramm, W. Final Report: Overview) and by the normal process of osmosis portions of this report found their way into the Overview and vice-versa. The opportunity to interact in this way with one of the pioneers in the communications and media fields will always be prized.

Senior consultant C. Ray Carpenter and Advisory Committee member Robert Stake provided a meaningful counterpoint throughout and also valuable background information regarding Title VII.

Adolph Koenig and Andrew Molnar of the U.S. Office of Education functioned as Advisory Committee members and constructive critics of the project from its inception. Their unique knowledge, based upon their day-in, day-out involvement with Title VII, has been invaluable. Other USOE personnel such as David Pollen, James McPherson, and Carlos Stewart also have facilitated this work. In addition, former USOE personnel who were directly involved with Title VII have given willingly of their time. A USOE member and former Title VII staff person, Thomas D. Clemens, was of inestimable help to this project. His ability to recapture and relate both the sacred and profane aspects of Title VII was unmatched. There is no question in the minds of many who have been associated with Title VII that his dedication and creative management were in great part responsible for many of Title VII's successes. Their viewpoint is shared by this author.

The search for data and information required from the legislative archives was nobly conducted by Margaret C. Snyder of the project staff. Valued guidance in this area was tendered

by Charles A. Quattelbaum, specialist in education, on the staff of the Senior Specialist Division of the Legislative Reference Service in the Library of Congress. Other legislative personnel involved with the origin of Title VII who gave generously of their time included: Frederick R. Blackwell, Staff Counsel, Subcommittee on Labor, U. S. Senate; John Forsythe, General Counsel, Senate Labor and Public Welfare Committee; Stewart E. McLure, professional staff member, Senate Committee on Public Works; William G. Ready, Director, Washington Office, National Assembly for Social Policy and Development; and Jack Duncan, Counsel for the Select Subcommittee on Education, U. S. House of Representatives.

Additional valuable data sources developed as the project progressed, such as those contributed by the ERIC Clearinghouse on Educational Media at Stanford University which provided, as needed, access to and assistance with various source data.

Harold Mitzel and Edward Cohen were both most gracious in arranging site visits to their campuses at the Pennsylvania State University and Indiana University, respectively. The members of the Educational Media Council, during their May, 1969 meeting, provided invaluable guidance and ideas. Miss Claire List of The Ford Foundation shared information with the staff regarding the Foundation's work on educational television.

Original source data for a number of chapters in this report were supplied by several individuals working at various times on the project staff. In each instance, their contributions have been carefully modified and amplified under the aegis of the project director. Those who provided information, analyses, etc., for the quarterly reports of the project which later grew into the indicated final chapters of this document include: William H. Allen (V); Carol Aslanian (IX); Henry T. Ingle (VIII); Douglas Hall (VII); Colin K. Mick (V); Harriet Miller (X); George Rawalt (IV, VI, X); Margaret C. Snyder (II), and Wilbur Schramm (I, V, XIII, XIV).

The project director also wishes to acknowledge the latitude and freedom afforded by Sidney P. Marland, IED's president and Project Principal Investigator to pursue the project with minimal constraints and occasional guidance. His contributions as an Advisory Committee member were invaluable; his constructive advice and counsel in his role as "Captain" of IED's ship were always timely and on target.

This task was started early in the Spring of 1969 and the unfortunate death of Dr. James D. Finn, Chairman of the Department of Instructional Technology at the University of Southern California, at that time, deprived the project of the benefit of his involvement. His Gaelic wit and wisdom were sorely missed. In the sense that he was a key participant (both directly and indirectly) in many of the Title VII projects, his influence was ever present in this assessment. By virtue of being a great teacher, and one of the first who saw the potential benefits and shortcomings of technology in education, his influence has had an indelible impact on this endeavor.

Robert T. Filep

El Segundo, California
July 15, 1970

TABLE OF CONTENTS


| CHAPTER | | Page |
|---|---|---|
| I | INTRODUCTION | 1 |
| II | LEGISLATION: TITLE VII, ITS AMENDMENTS, AND RELATED LAWS | 19 |
| III | FACTS ABOUT THE EXPENDITURES OF MONIES: ONE PROFILE OF THE ACT | 46 |
| IV | TITLE VII IMPACT ON UNIVERSITY MEDIA DEPARTMENTS AND UNIVERSITY RELATED ORGANIZATIONS | 51 |
| V | SELECTED JOURNAL REVIEW AND INCIDENCE OF CITATION ANALYSIS | 70 |
| VI | CONVENTION PROGRAM REVIEW | 89 |
| VII | METHODOLOGY OF RESEARCH STUDIES FUNDED UNDER TITLE VII A | 93 |
| VIII | THE IMPACT OF TITLE VII ON FIVE EDUCATIONAL MEDIA | 101 |
| IX | THE FOUNDATIONS AND MEDIA | 117 |
| X | SURVEY OF MEMBERS OF THE ADVISORY COMMITTEE ON NEW EDUCATIONAL MEDIA | 123 |
| XI | PROJECT DIRECTORS QUESTIONNAIRE ANALYSIS | 135 |
| XII | ADMINISTRATIVE AND MANAGEMENT ANALYSIS | 142 |
| XIII | WHAT CAN BE LEARNED FROM THE TITLE VII EXPERIENCE TO GUIDE THE ADMINISTRATION OF FUTURE PROGRAMS OF THIS KIND? | 158 |
| XIV | TO GUIDE FUTURE LEGISLATION? | 164 |

APPENDIX

| | |
|---|---|
| NDEA TITLE VII PROJECTS PART A | A-1 |
| NDEA TITLE VII PROJECTS PART B | A-16 |
| NUMERICAL INDEX TO VARIABLES EXAMINED IN TITLE VII A PROJECTS | A-29 |

TABLE OF CONTENTS (Cont'd)


| | Page |
|---|---|
| PROJECT DIRECTORS QUESTIONNAIRE RESPONSES | A-38 |
| PROJECT DIRECTORS QUESTIONNAIRE RESPONDENTS | A-53 |
| TITLE VII ADVISORY COMMITTEE SURVEY LETTER | A-55 |
| AN ABRIDGED DESCRIPTION OF THE TITLE VII LEGISLATION | A-57 |
| USOE PERSONNEL QUESTIONNAIRE | A-60 |
| PROJECT DATA SOURCES | A-64 |
| BIBLIOGRAPHY | A-66 |
| PROJECT PERSONNEL | A-81 |

# INTRODUCTION

## Rationale and Objectives

The past is prologue--the events of the 50's and 60's inevitably will influence American society in the 70's as it educates its young. Thus, the federal legislation that was devoted to strengthening education during the 60's will also help to shape education during the current decade. This will be particularly evident in legislation dealing with new approaches to teaching and curriculum design and with a fuller school utilization of the knowledge derived from recent audio-visual and technological developments. To plan and cope with the advances to be made in education during the 70's, it is valuable to review what has gone before.

Until 1958, only two major pieces of legislation aimed at improving and strengthening American education on a broad front had become law. In 1958, the National Defense Education Act (NDEA) was passed, marking a turning point in the history of federal aid to education and providing a base from which more ambitious and extensive programs would be launched in the 60's.

A study of the total effect of the National Defense Education Act would be both interesting and useful. Within the NDEA, however, the section identified as Title VII is of a more manageable size for assessment and study than the total act, and has certain characteristics worthy of careful analysis and close scrutiny. Total expenditures under this title were $40.3 million for more than 600 projects over ten years. This is in contrast to well over a billion and one-half dollars spent and the thousands of projects supported under the rest of the act.

Administratively, Title VII is interesting because it was "categorical" legislation in support of research and the dissemination of the research findings in the fields of instructional media and technology. It did not provide, however, for large-scale "purchase of innovative materials, equipment, or facilities." Furthermore, it contained the unusual provision that a committee comprised of representatives from the lay and educational communities would evaluate proposals for research grants and contracts.

For the above reasons, and for the still more important factor that Title VII was closely related to the state of ferment characteristic of education during the late 1950's and 1960's,

the U. S. Office of Education requested that this study of Title VII be conducted. The objective was to discover what can be learned from its impact and from the administrative problems involved in its implementation and operation. In addition, this study will be used to guide future legislation and future programs of a similar nature.

*The overall objective of this project was to review the research and dissemination activities carried out under Title VII between 1958 and 1968 and to assess the educational advances and changes made under its auspices.*

*Secondly, this study also evaluates the strengths and weaknesses of the administrative procedures required by the legislation. Specific recommendations are made regarding policies and practices for future programs of this nature.*

These objectives were investigated, analyzed, researched, and assessed by way of:

- Thorough research and analysis of the literature and similar data available on Title VII.
- On-site observation of selected institutions where a number of studies had been conducted under this title of the act.
- Distribution and evaluation of field and mail interviews of project directors and other personnel associated with Title VII.
- Convening an advisory group to assist in formulating assessment guidelines and recommendations for future policies. (See Figure 1)

Because Title VII can be neither adequately evaluated nor fully understood without considering it in reference to the educational activity prevalent in its time, one should first say something about the state of ferment characterizing the period.

## Title VII and the Changing Nature of American Education

The years since Title VII came into existence in 1958 have been a time of unprecedented ferment in American education. Much of this can be traced to the shock wave that went through the American people at the launching of the first Soviet Sputnik in October 1957. Much, but not all. The seeds of

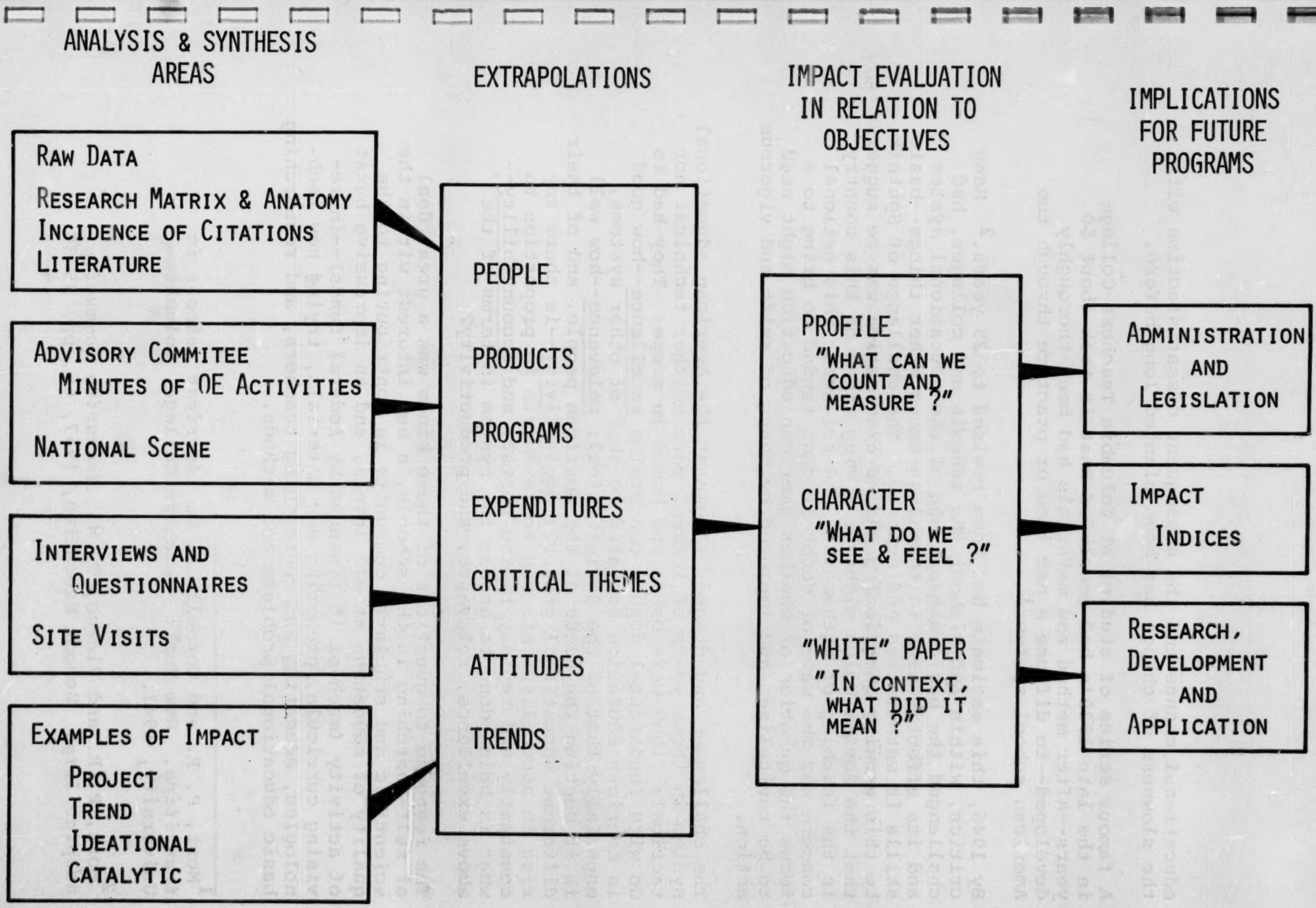



FIG. 1. TITLE VII STUDY RATIONALE

educational change and the subsequent dissatisfaction with the slowness of change had been planted long before.

A famous series of studies at Columbia Teachers College in the late 1930's had concluded that it took about 50 years--after method and materials had been thoroughly developed--to diffuse a new idea or practice through the American school system.[1]

By 1946, this estimate had been revised to 25 years.[2] Many critics, within and without the schools and colleges, had challenged the basic assumptions of the educational system and its effectiveness in teaching--among other things--basic skills in mathematics and science. The challenge of Sputnik to this growing questioning and re-examination was to suggest that the Soviet Union might be moving ahead of this country in the teaching of mathematics and science. This national concern and the wave of doubt it cast tended to bring to a focus the question of whether American education might need to be revitalized and improved by means of swift and vigorous action.

The challenges and demands thrown at the American educational system in those years of ferment were neither technical nor tactical: they were basic and broad in scope. They had to do with fundamental doubts concerning excellence--how good is American education compared to that of other systems, especially that of the Soviet Union?; relevance--how well is it meeting the needs of the American people, and of their different educational groups?; productivity--is there any rise in accomplishments and achievements in proportion to constantly and rapidly rising costs?; and accountability--what is being done to assess the system in terms of the above excellence, relevance, and productivity?

The response to questions of these kinds was a great deal of self-searching in the schools, a new interest within the scientific and scholarly community in contributing to the quality of education at all levels, and an impressive burst of activity (much of it financed by federal funds)--in revising curricula, preparing new materials, trying new technologies, educating and re-training teachers, and researching basic educational problems and methods.

---

[1] Mort, P. R. and Cornell, F. G. *American schools in transition*. New York: Teachers College, Columbia University, 1941.

[2] Mort, P. R. and Pierce, T. M. *Measuring community adaptability*. School Executive, 1947, 66, pp. 35-36.

Riding the tide of this educational upsurge and ferment, has been a main current of change in the form of a growing reliance on a systematic approach to education. The significance of this development can best be seen against the background of the traditional privacy of the classroom and the assumed self-sufficiency of the teacher.

In America, as elsewhere, the teacher has typically had to play an all-purpose role--lecturing, drilling, discussing, counseling, disciplining, course-structuring, record-keeping, and performing other activities. Even in highly-sophisticated educational systems, a teacher usually has been responsible for all of the teaching of one class of students, at least within the elementary school context. He or she has been expected to know the substance of the elementary curriculum--science, language, mathematics, social studies, communication skills, and fine arts. And, in addition, has had to serve as dean of students, examiner, counselor, and registrar of records.

These roles and the assumed self-sufficiency of each and every teacher to handle them competently, if not expertly, evolved from the tradition and fond nostalgia of the "one room schoolhouse." In those one room schools, a teacher often had to direct and supervise, if not teach, for as many as eight grades, with the result that most teaching was by book and blackboard. The textbook usually governed the content of the curriculum and, in an early stage of the development of school systems, the teacher was also expected to serve as the textbook.

This heavy load of roles and the use of a teacher's time and responsibility have long been questioned and criticized. Edward L. Thorndike of Columbia University said in 1912, long before the major modern advances in educational technology, that "A human being should not be wasted in doing what 40 sheets of paper or two phonographs can do."[3] There has been a long history of effort to bring additional learning resources into the classroom and to encourage a variety of learning activities in addition to the traditional pattern of listen-study-recite. Increasing use of additional learning resources has grown partly out of the rising amount of attention and time being captured by the audiovisual media in American life, and the adaptation of these and other media as learning resources for the schools. For instance, U.S. children now spend about as much time watching home television during their first 12 or 15 years of life as they spend in school.

---

[3] Thorndike, Edward L. *Education*. New York: The Macmillan Company, 1912, p. 167.

Title VII
National Defense Education Act

HISTORICAL
OUTLINE

Passed by the House, 212 to 85, 131 not voting,
Passed by the Senate, 66 to 15, 15 not voting.

Signed into law by President Eisenhower,
September 2, 1958.

Designed to "encourage research and experimentation in the more effective utilization of television, radio, motion pictures, and related media" (including, by later amendment, printed and published materials).

Expended in 10 years some $40.3 million on approximately 600 grants and contracts.

Allowed to lapse on 30 June 1968, when its functions were authorized principally under other legislation.

Another source for change in the teacher's role has grown out of the increased recognition and realization of the wide range of individual differences among students and from the attempt to cope with--and adapt and adjust to--these variations and other cultural, social, and intellectual differences.

Today's sophisticated learning resources bear a relationship to the traditional textbook as widely different as Apollo 13 to the first flight by the Wright Brothers! The acceptance of the new resources has been so widespread that it is now difficult to imagine a classroom totally lacking in filmstrips, motion pictures, tape recorders, transparencies, overhead projectors, instructional television and radio, programmed self-instructional materials in many forms, practice kits, and similar devices. Such facilities not only enormously enrich the content of the curriculum, they also provide new techniques of working with it, as well as point to exciting ways in which the student can vary and guide his own study and practice. These innovations free the teacher from such time-consuming activities as individual language practice and arithmetic drill, and supplement his effectiveness in critical areas of his primary duties: teaching.

These new resources did not receive overnight acceptance. Instructional films, for example, have been available for many decades, but their use was negligible until the launching of Sputnik sparked an unprecedented concern and dissatisfaction with the learning devices and practices of the time. In 1958, the annual expenditure of elementary and secondary schools for audiovisual equipment was about $62 million; in 1968, it was about $253 million. In 1958, there were about 50 language laboratories in American secondary schools; in 1963, about 5,000. And still, the actual penetration of such teaching resources is very slight. The obstacles are many, including inappropriateness of materials, lack of funds and facilities, and defense of the classroom as the last bastion of humanism. The Commission on Instructional Technology, for example, reported recently that no more than five percent, and perhaps as little as one percent, of class hours in American schools, are presently given over to audiovisual instruction.[4]

Despite the slow growth, however, of new approaches like team teaching and the relatively slow acceptance of additional learning resources, the new role of the teacher is becoming clearer. Recently, this new role for the classroom teacher

---

[4] Commission on Instructional Technology. *To Improve Learning*. Committee on Education and Labor, House of Representatives, March 1970.

has been clearly and sharply defined as first and foremost that of an effective and enriched guide of learning rather than a "jack of all trades but master of none." This role is that of a manager of a system of learning activity within the classroom. No longer is the teacher expected to do everything. Rather, now he is expected to guide his students to the particular combination of learning activities and resources that best meet their needs at any given time.

To do this, the teacher needs support: resources such as movie projectors; language laboratories; instructional television and films; the chance to share knowledge about his specialties with other teachers; and the help of semiprofessionals with routine duties. Increasingly, the teacher is coming to think of his job as an educational specialist who channels, combines, and brings an interrelated system of learning resources to bear on the needs and interests of the students.

The trend of this system-related approach centers on the idea of individualizing instruction so that students can work at their own pace with maximum motivation as a general pattern of education. This has been accepted very slowly, because schools are typically organized for group rather than individual pacing. Nothing less than a completely revised curriculum and completely revised school procedures would make individualized instruction on a broad scale possible. In a few experimental schools, however, and within limited sectors of the curriculum, individualized instruction has made some progress. The ungraded school is becoming more common.

Programmed instructional materials have been the precursor to large scale, individualized instruction. And these have had to follow an even rougher road to adoption, because excellent programs have been in short supply and also because the programmed instruction method directly challenges the very nature of instruction rather than merely affecting classroom efficiency. In fact, programmed instruction requires a statement of very specific performance objectives for teaching and assessment. Planning for instruction, testing, and accountability are central to such a programming process; the overall approach provides a strategy whereby a teacher can tell how well the program is doing, and both the teacher and the student can tell how well the student is doing. Performance contracting endeavors are one by-product of this approach.

This current argument for individualization of instruction parallels the movement toward upgrading and updating curricula, which gained so much impetus from Sputnik. If American students

were not learning by the best and newest methods, especially in mathematics and science, why not? If many of them were going through school without really learning how to read, why not? Thus in these years of ferment, beginning in 1958, there has been a number of national curricular revisions involving leading scholars in each field, based on the original pattern of the Physical Science Study Committee. The "new math" has swept the schools, concerned attention has been given to finding improved ways to teach reading, and so on.

If the process of programmed instruction was harmonious with the movement toward individualization, then instructional films and television, improved text materials, and ingenious practice and demonstration devices were typical of the movement to update curricula. These were intended to bring learning experiences to the student that the teacher could not provide. But it was found that to update curricula, it was necessary to update teachers too. Therefore, there has been intensive activity in teacher training and special attention given to teacher training institutions.

Throughout these developments, the calls for accountability have been heard more loudly and more insistently. These requests have been resisted bitterly by humanists and others who argue, with some justification, that the effects of education cannot, at least presently, be measured fully.

Accountability and evaluation have been accepted only grudgingly and reluctantly by school administrators who have to face the taxpayers. It has been resisted by teachers and makers of educational materials who fear unfavorable or uncomfortable comparisons. But the demand for an accounting grows. What are the new tax dollars accomplishing? How effective are the new curricula and the new technologies? Are our students learning as well as other students? Are we making the most effective use of our teaching and are we employing the most productive technologies? And lastly, how can the community participate in setting the goals and objectives that are desired, i.e., set the criteria for accountability?

The outcome of these inquiries has been to arouse a new interest in using and improving the methods of program evaluation, evidenced by the establishment of several university research units devoted to the study of such evaluative approaches and by the writing of requirements for assessment into the more recent federal educational legislation.

This was the nature of the ferment in education. It could be described as an early stage of educational revolution. As John Gardner, former Secretary of Health, Education and Welfare (HEW), recently said:

> "We have already developed and tested many of the new ingredients of a new era in education. But the pieces of the educational revolution are lying around unassembled."[5]

When these pieces are assembled, this assembly will undoubtedly be done in terms of a new technology and philosophy of education which reflects, tacts, meets and answers the fast changing needs of our society. The critical need to assemble and combine human resources and talents with technological advances and knowledge by using a systems approach to solving educational problems was much talked about within and outside Title VII during the 1960's. The need for such advances in the process and systematic approach to educational problems was described by the Commission on Instructional Technology, in its 1969 report which indicated the necessity of finding----

> "...a systematic way of designing, carrying out, and evaluating the total process of learning and teaching, in terms of specific objectives, and employing a combination of human and nonhuman resources to bring about more effective instruction."[6]

The objectives of the National Defense Education Act were formulated and set forth in an atmosphere of national emergency. Science and technology were to be rallied to increase the national security, and every American child able to absorb the new technology was to be offered the opportunity to be educated to his capacity. It was decided that throughout their school career each student's counseling for vocations was to be increased. Especially in science, mathematics, and modern languages, students should have the advantages

---

[5]Gardner, John W. Conversation with the staff of the Commission on Instructional Technology, July 1969. Quoted in *To Improve Learning*, A Report to the President and the Congress of the United States by the Commission on Instructional Technology, Washington, D. C., 1970, p. 38.

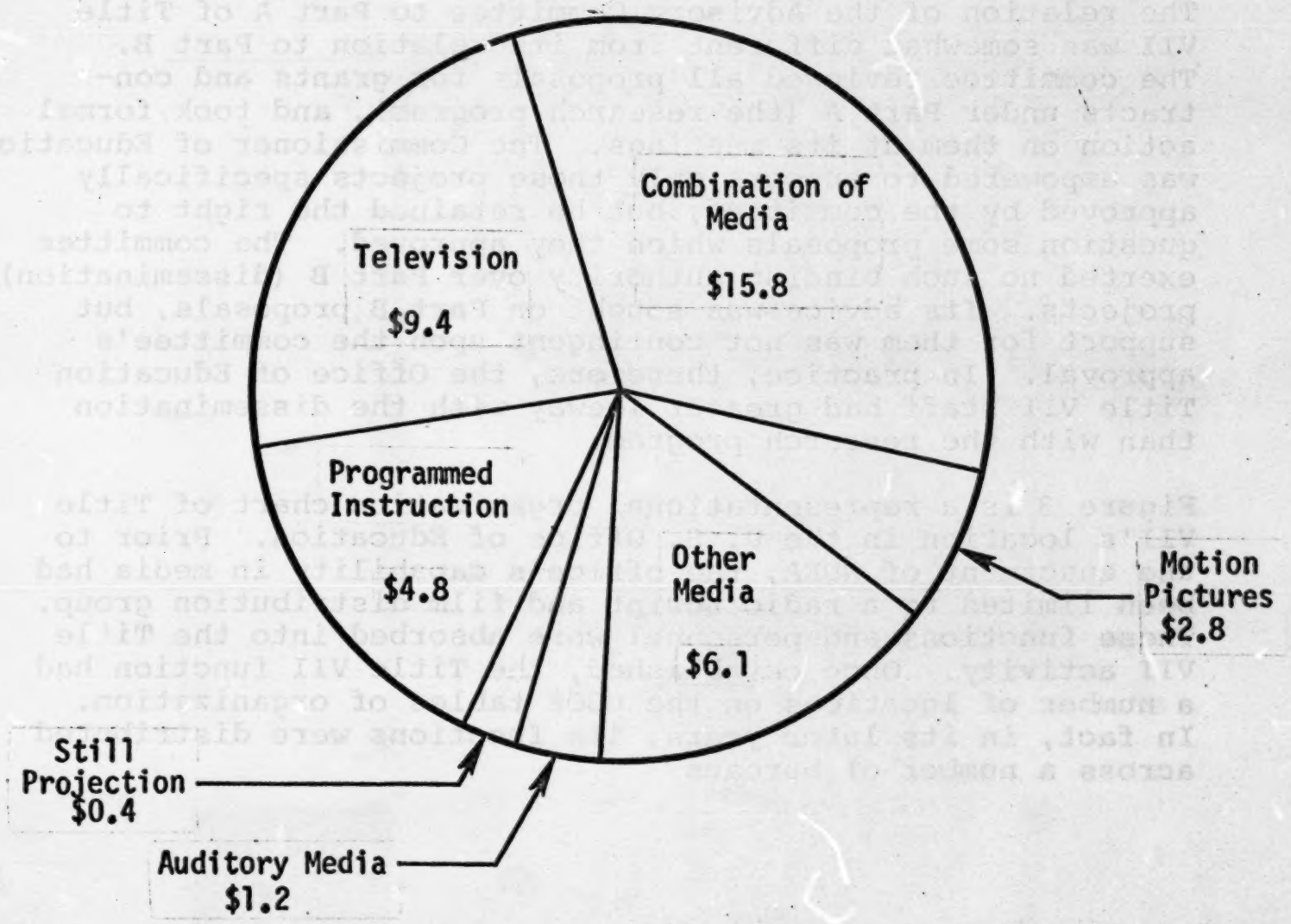
[6]*To Improve Learning*, pp. 5 and 38.

of the latest instructional resources. This is where Title VII came in; "*to mobilize the latest and most effective communication technologies in support of classroom learning.*" (See Figure 2.)

It is fair to say that a strong emphasis on utilization, a summing up of what had already been found out about new instructional technologies, identification of most promising avenues for further study, scientific evaluation of the effectiveness of educational media and materials--were all salient and uppermost in the minds of the legislators who dealt with Title VII.

As Title VII came out of the two Houses of Congress and the conference committee, it retained the emphasis on research that would be practically useful in improving teaching through the use of media and in "getting such knowledge" into circulation.

Fig. 2. Distribution of Title VII Expenditures by Instructional Medium



Thus Title VII came into effect on September 2, 1958, with high hopes of what it could accomplish by mobilizing and channeling knowledge to make education more effective. For an outline of the content and structure of Title VII, see Title VII Provisions in Brief, Page 18.

## How Title VII Was Administered

The legislation did not provide for a permanent staff, although it did contain liberal provisions for employing consultants. The few permanent employees, whom the Office of Education was able to assign to the administration of Title VII, were therefore supplemented by specialists in the field of instructional media brought in from the universities on one and one-half year, or shorter appointments. Field readers were employed primarily for Part A projects, and were compensated as consultants. This made, on the one hand, for the infusion of fresh ideas and viewpoints; on the other, for frequent turnover of administrative personnel.

The relation of the Advisory Committee to Part A of Title VII was somewhat different from its relation to Part B. The committee reviewed all proposals for grants and contracts under Part A (the research program), and took formal action on them at its meetings. The Commissioner of Education was empowered to support only those projects specifically approved by the committee, but he retained the right to question some proposals which they approved. The committee exerted no such binding authority over Part B (dissemination) projects. Its advice was sought on Part B proposals, but support for them was not contingent upon the committee's approval. In practice, therefore, the Office of Education Title VII staff had greater leeway with the dissemination than with the research program.

Figure 3 is a representational organization chart of Title VII's location in the U. S. Office of Education. Prior to the enactment of NDEA, the office's capability in media had been limited to a radio script and film distribution group. These functions and personnel were absorbed into the Title VII activity. Once established, the Title VII function had a number of locations on the USOE tables of organization. In fact, in its later years, its functions were distributed across a number of bureaus.

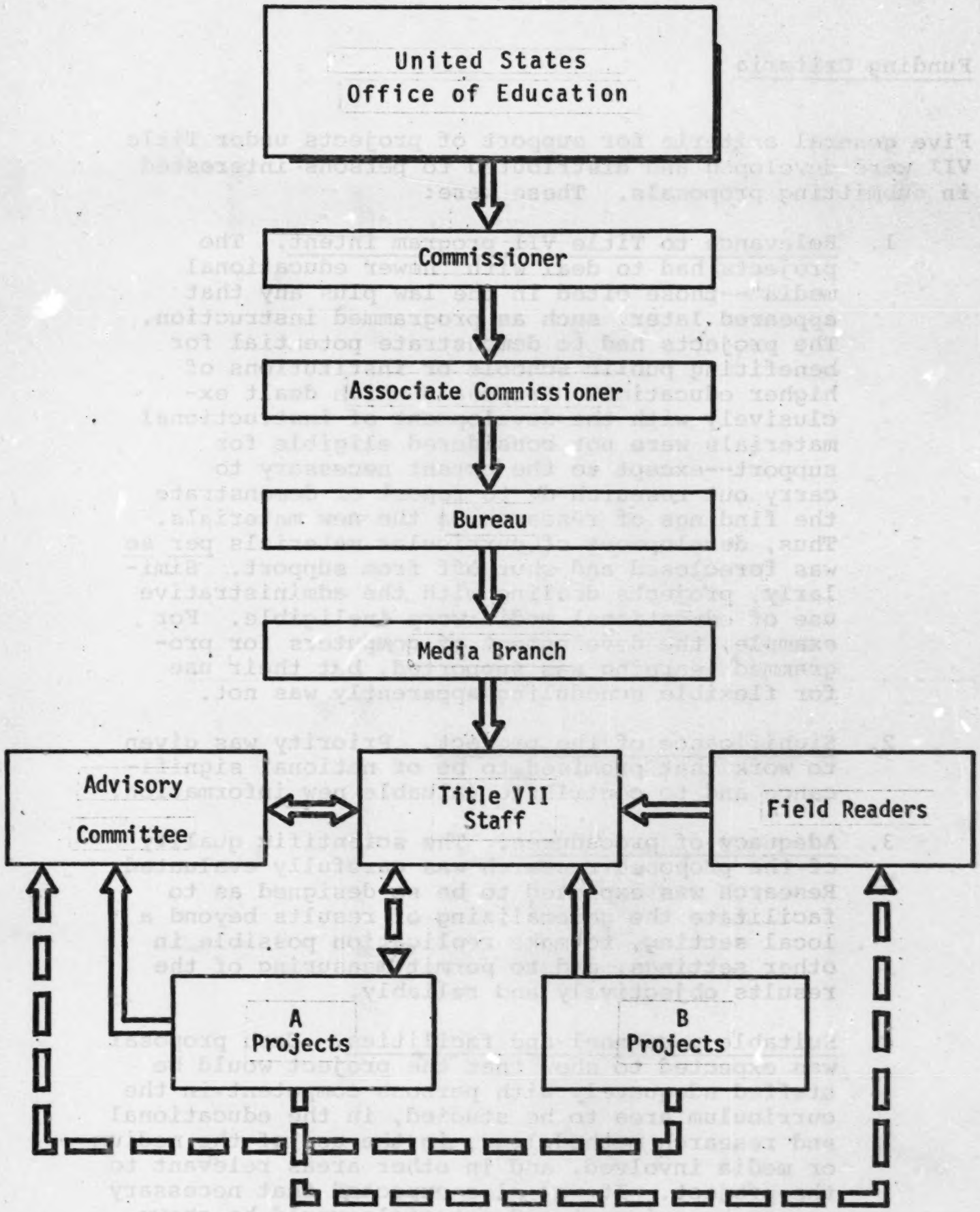



Fig. 3. Schematic Organizational Chart of Title VII's "location" in the U. S. Office of Education

## Funding Criteria

Five general criteria for support of projects under Title VII were developed and distributed to persons interested in submitting proposals. These were:

1. Relevance to Title VII program intent. The projects had to deal with "newer educational media"--those cited in the law plus any that appeared later, such as programmed instruction. The projects had to demonstrate potential for benefiting public schools or institutions of higher education. Proposals which dealt exclusively with the development of instructional materials were not considered eligible for support--except to the extent necessary to carry out research or to report or demonstrate the findings of research on the new materials. Thus, development of curricular materials *per se* was foreclosed and shut off from support. Similarly, projects dealing with the administrative use of educational media were ineligible. For example, the development of computers for programmed learning was supported, but their use for flexible scheduling apparently was not.

2. Significance of the project. Priority was given to work that promised to be of national significance and to contribute valuable new information.

3. Adequacy of procedures. The scientific quality of the proposed research was carefully evaluated. Research was expected to be so designed as to facilitate the generalizing of results beyond a local setting, to make replication possible in other settings, and to permit measuring of the results objectively and reliably.

4. Suitable personnel and facilities. Each proposal was expected to show that the project would be staffed adequately with persons competent in the curriculum area to be studied, in the educational and research methodology, in the use of the medium or media involved, and in other areas relevant to the project. It was also expected that necessary research equipment and materials would be shown to be available. Ordinarily, Title VII funds were not to be used for purchase of equipment, although in certain cases 20 percent per year of the cost of essential equipment was regarded as acceptable.

5. Economic efficiency. Projects were to be evaluated in terms of their cost compared with the cost of alternative approaches to the same task.

As Part A proposals were developed they were sent to field readers for detailed comments and evaluation. In the later years of the Title VII program, these readers were brought to Washington, D. C., twice a year, to discuss the projects with the Office of Education staff. Abstracts of all proposed projects and complete copies of all the proposals recommended favorably by the field readers were sent to the Advisory Committee in advance of meetings with a recommendation by the office staff. On the first day of a committee meeting, all the proposals recommended by the readers and the staff, together with any additional projects that two or more committee members asked to have discussed, were set aside, reread, and individually rated by each committee member at the conclusion of the day's meeting. During the remaining days of the meeting, each proposal was discussed and formally acted upon. The committee could approve a project subject to negotiation between the Office of Education staff and the contractor of the proposal regarding desired changes in research design or budget. It could disapprove a project with or without comments.

The Title VII staff members within the Office of Education were required to provide an adequate and usable summary and evaluation of Part A proposals, and then to serve as negotiators and contract monitors for the projects that were to be funded. With Part B, the Title VII staff had greater leeway. It would initiate discussion of projects with prospective contractors, and it could fund projects on its own decision, subject to the restrictions of the Act and the procedures of the office. In many instances, external opinions were solicited regarding a proposal prior to a decision. A shift to pre-specified program priorities and areas occurred during the later years of Title VII.

## The Legislated Advisory Committee

The function and importance of the Advisory Committee changed somewhat as the position of Title VII was altered within the Office of Education. During the first four years, when the new program was getting under way and before the system of field readers, long-term consultants, and staff evaluations was fully built, the committee was

expected to review proposals and assist in establishing guidelines for the operation of Title VII. During this time, members of the committee--many of whom held strong opinions regarding the future of Title VII--reported that they often felt frustrated. This frustration seemed to have two main causes: first, discussion of technical details was carried on at the expense of policy discussions, and secondly, the USOE commissioners did not share the committee's optimism regarding the future of instructional media. In the beginning, however, committee members did feel a greater sense of being useful and being depended on, than in later years when other media oriented programs gradually "absorbed" Title VII.

Between 1962 and 1965, the Office of Education was given vastly increased responsibilities for administering federal funds and programs, and was in a perpetual state of reorganization to meet these new obligations. This was a period of uncertainty both for the office staff and for the committee. The reorganization of 1965 diffused the Title VII projects throughout the office and left the committee with somewhat less than a clear mandate. For the last three years of Title VII's existence, the resources of the Advisory Committee were called upon more often for policy recommendations than for help with the details of administration. Thus, members were able to realize the committee's most useful function--policy advice--only toward the end.

## The Study Section

As the Office of Education gained experience with Title VII, it added a new administrative element: an Educational Media Study Section. This was made up of scholars from various disciplines who had been active in the study of instructional media. The initial purpose of this group was to furnish guidance in the selection of priority areas for research, thus providing a sense of direction rather than diffusing research under Title VII. This group met rather infrequently, but exerted considerable influence on the program. This influence predominated because some of its members were also members of the committee, and also it could offer advice directly to the staff. It commissioned several papers that summed up research in various important areas and pointed toward urgently needed additional research.

Toward the end of Title VII, the Study Section and the Advisory Committee together submitted to the Commissioner a set of far-reaching recommendations for the development

of instructional media research. One of these was for a major review of the state of the art in instructional media supplementary to the report of the Carnegie Commission on Educational Television. Provision was made for carrying out this study under the Public Broadcasting Act. The recommended review was one of the last projects financed under Title VII, and was completed in late 1969 by a distinguished commission--the Commission on Instructional Technology.

Title VII
National Defense Education Act

PROVISIONS
In brief

Part A authorized the Commissioner of Education, through grants or contracts, to "conduct, assist, and foster research and experimentation...including the development of new and more effective techniques and methods: (1) for utilizing and adapting motion pictures, printed and published materials, videotapes and other audio-visual aids, film sfrips, slides and other visual aids, recordings (including magnetic tapes) and other auditory aids, and radio or television scripts for such purposes; (2) for training teachers to utilize such media with maximum effectiveness; and (3) for presenting academic subject matter through such media."

Part B authorized the Commissioner to "disseminate information concerning new educational media, including the results of research and experimentation conducted under Part A to state or local educational agencies, for use in their public elementary or secondary schools, and to institutions of higher education" by entering into contracts for "(1) studies and surveys to determine the need for increased or improved utilization of (instructional media)....; (2) catalogs, reviews, bibliographies, abstracts, analyses of research and experimentation, and such other materials as are generally useful in the encouragement and more effective use of (instructional media)...."; (3) (upon request) providing "advice, counsel, technical assistance and demonstrations to state or local educational agencies and institutions of higher education undertaking to utilize such media."

The Advisory Committee was to consist of the Commissioner, as chairman, a representative of the National Science Foundation, and three persons from each of the following constituencies: (1) individuals identified with the sciences, liberal arts, or modern foreign languages in institutions of higher education; (2) individuals engaged in teaching or supervision of teaching in elementary or secondary schools; (3) individuals of demonstrated ability in the utilization or adaptation of (instructional media); and (4) individuals representative of the lay public who have demonstrated an interest in the problems of communication media. The Committee was to (1) advise, consult with, and make recommendations to the Commissioner on matters relating to the utilization and adaptation of (instructional media), and on matters of basic policy arising in the administration of Title VII; (2) review all applications for grants-in-aid under Part A, and certify approval to the Commissioner of any such projects which it believes are appropriate for carrying out the provisions of Title VII; (3) review all proposals by the Commissioner to enter into contracts under Title VII and certify approval of any such contracts which it believes are appropriate under Title VII.

Appropriations were authorized in the amount of $3 million for the first year and $5 million for each of the nine succeeding years.

## LEGISLATION: TITLE VII, ITS AMENDMENTS, AND RELATED LAWS

### Historical Background

As the 1950's opened it became apparent that the United States was exerting herself mightily just to keep from falling behind in the field of education. After World War II the country found itself amidst spiraling inflation and the 16 or 17 years of neglect of the schools, incurred during periods of depression and war, had to be made up. Yet this recovery had to be accomplished while dealing with the combined impact of both the wartime baby boom, whose vanguard began arriving for classes in the late 1940's, and the sudden and pervasive information explosion.[1] To cope with both of these problems, local tax rates were increased, innumerable bond issues were floated, permissible levels of district indebtedness were constantly raised, and small, inefficient school districts were merged. "Scholars and pamphleteers, often working with funds provided by major private foundations, addressed themselves with increasing fervor to the patent inadequacies of the educational system and to possible new directions."[2] Some suggested obtaining federal funds to bridge the gap, but given the American tradition of allowing only state and local responsibility for schools, proponents of federal aid to education were labeled as constituting a threat to states' rights. Only an apparent national emergency

---

[1]Stephen Bailey and Edith Mosher. *ESEA: The Office of Education Administers a Law*, pp. 4-11.

[2]*Ibid.*, p. 5. See also Charles E. Wilson, *A study of the Background and Passage of the National Defense Education Act*, pp. 10-31.

could overcome resistance accumulated over nearly 200 years.[3]

In the 1950's, a frightening new age was emerging, dominated by science and the military. The political climate was dominated by cold war apprehensions. These fears culminated in October of 1957 when Sputnik raised the specter of a hail of Soviet warheads and dramatized unexpected educational successes.

Preceding this Russian technical feat and the apparent threat of superiority in the field of Soviet education, the Office of Education had composed a number of commissions and other groups to examine the problems facing United States education. These were in response to a number of emerging "postwar" educational problems.

In 1956, for instance, President Eisenhower appointed a Commission on Education Beyond the High School. Reporting the schools' heavy burden due to wartime births, the commission stressed the need for increasing, by means of federal support, the quantity and quality of both teachers and the

---

[3]*American resistance to federal control or support of state and local affairs originated as a reaction against colonialism, and this bifurcation was carefully spelled out in the Constitution. Aversion to federal involvement has been particularly intense in the field of education. The gradual evolution toward acceptance of national concern and assistance began with the Ordinance of 1785, which set aside township lands for schools. In 1862, the Morrill Land Grant Act laid the basis for many state colleges, and the Smith-Hughes Act of 1917 assisted state efforts in developing vocational education. In 1950, federal assistance to areas affected by the proximity of large federally-related enterprises (called "impacted areas") was initiated. These major precedents combined with acceptance of federal participation in other kinds of programs--the post office, federal law enforcement systems, and county agencies. With the New Deal had come the WPA, the Civilian Conservation Corps, the Rural Electrification Administration, and the Farm Home Loan Corporation. Social Security, of course, provided direct payment to individuals. Yet the National Defense Education Act of 1958 and subsequent bills through the 60's, did constitute outstanding breakthroughs into an area particularly treasured as a local right and responsibility namely: education.*

school facilities.[4] And in 1957 and 1958, the Office of Education stepped up its production of data and reports, most notably of publications related to higher education.[5] A task force was appointed[6] in 1957 to study the "Report of the President's Commission on Education Beyond the High School," and afterwards to draft the administration's official policy toward school aid measures. During the completion of this process, the members of the Commission exchanged ideas with the Senate and House Committees responsible for educational legislation at their end of the Capitol;[7] this interplay materially affected the character of the act that was finally signed into law, and was part of the process leading toward greater federal involvement in education.

## Origin and Legislative Background of the National Defense Education Act

Sputnik undeniably was the symbolic lift-off vehicle for the National Defense Education Act (NDEA), which carried a profusion of subsequent bills in its wake. But the history of sporadic federal legislation in the field of education, the gradual extension of federal participation in local activities in other fields, and the scientific demands imposed on the nation by the cold war with its constant impetus to encourage the burgeoning of technologies were all necessary conditions for concern over the state of American education as well as the consequent search for extraordinary innovative methods and resources for change and improvement.

---

[4] *Ibid.*, p. 59. Specific recommendations were: (1) continuation of low-cost loans for construction of dining halls, dormitories, and the like; (2) making available urban land freed by slum clearance programs for use by public education agencies; (3) constituting a new program of matching grants-in-aid for public and private college classroom and laboratory construction; (4) suggesting that the federal establishment pay fully and equally all costs borne by institutions in connection with research done for the federal government; and (5) revision of the tax laws to reward donations to educational institutions.

[5] William Stanley Hoole, NDEA, *A Brief Chronology*, pp. 9, 27.

[6] Marion B. Folsom, Secretary of the Department of Health, Education, and Welfare, appointed the task force, headed by Commissioner of Education Lawrence G. Derthick.

[7] William Stanley Hoole, *op. cit.*, pp. 24-52.

In the 1950's, a number of prominent as well as lesser-known Americans put forth their nostrums for education's maladies. They were joined by several committees and panels established to diagnose and prescribe for the field's specialized ills. These groups, public and private, influenced and interacted with the White House, the Congress, and with people at the departmental level in the federal government, as well as with Office of Education personnel.[8] The National Education Association (NEA) led a phalanx of organizations seeking school aid legislation.[9]

President Eisenhower, influenced by James Conant's commentary about the deficiencies and needs in American education brought to public notice by the launch of Sputnik, proposed a stronger act than had ever before been contemplated by concerned administration officials.

Some Congressmen also saw in Sputnik an opportunity to accomplish the educational changes they had long sought. Senator Lister Hill, the seasoned proponent of health and education legislation, seized upon the "science gap" and its implications for national defense to carry the Congressional vote on education reform. His perceptions were shared by Representative Carl Elliott, and the two Alabamans set to work, with the help of able legislative drafting on the part of members of the Senate Subcommittee on Education.[10]

Shortly after the administration's "Education Development Act of 1958" was introduced, Senator Hill and Representative Elliott presented the "National Defense Education Act" to Congress.[11] The administration's bill contained no section dealing with educational media; that of Messrs. Hill and

---

[8]Wilson, *op. cit.*, pp. 10-31.

[9]*Ibid.*, pp. 160-161. The impressive roster of organizations included the National Congress of Parents and Teachers, many labor unions, the National Council of Churches, the National Association for the Advancement of Colored People, the American Jewish Congress, and Protestants and Other Americans United for Separation of Church and State. Arrayed in opposition were the U. S. Chamber of Commerce, the National Association of Manufacturers, the American Medical Association, the Farm Bureau, the American Legion, and several others.

[10]Wilson, pp. 29-31.

[11]S 3187 and HR 10381.

Elliott did--specifically, it contained Title X - Research and Experimentation in More Effective Utilization of Television, Radio, Motion Picture, and Related Media for Educational Purposes. This title (which was to later become Title VII) provided for the creation of an institute in the U. S. Office of Education for research and experimentation to develop and evaluate projects involving radio, television, motion pictures, and other auditory and visual aids of potential value to state and local educational agencies and to institutions of higher education. It assigned the Commissioner of Education (in cooperation with the Advisory Council on New Educational Media) to conduct educational research or to implement it through the Institute by contracts with grants to public or nonprofit agencies. It recommended that motion pictures, kinescopes, educational or school television station equipment or TV cameras, videotapes, radio and TV scripts, etc., should be acquired and made available upon request to state and local educational agencies. For these programs the expenditure of $5 million was proposed for the first year and $10 million for each of the succeeding five years.

Title X of the bill was primarily the work of a diligent legislative analyst, Frederick R. Blackwell, of the Senate Labor and Welfare Committee's Subcommittee on Education, with considerable substantive data and ideas provided by C. R. Carpenter of Pennsylvania State University. Through lengthy discussions with researchers and media and school practitioners, and through visits to locations using instructional media, Blackwell drafted what was to become, with minor revisions by the Senate-House Committee of Conference, the Title VII provision of NDEA.[12]

Thus, under Title X (eventually to be Title VII), science and technology were envisioned as a means to, as well as an end of, instruction. The use of media (available communications technology) was apparently acceptable as an ingredient of the total effort; it evoked comparatively little specific floor debate from the legislators themselves, or from those who testified before Congressional committees.

---

[12]Information leading to this account was assembled from the *Congressional Record*, committee reports, and interviews with legislative staff and other persons involved with the development of the legislation. Although popular myth suggests that certain members of the audiovisual industry drafted what became the final House version of the section, it was difficult to obtain any factual evidence of this in legislative documents or in interviews with legislative staff.

Debate and Testimony

Much of the debate on the total NDEA centered around the perceived merits or dangers of federal aid to education, but the national emergency issue finally took precedence over fear of federal government control. In addition, questions of scholarships and loans, counseling, education in foreign languages and area studies, technical and vocational education, upgrading teachers' salaries, and the need for school buildings were debated, often from the perspective of persistent national issues--conspicuously as regarded civil rights and aid to private and parochial schools.[13]

The educational media title brought industry into the legislative scene as a new and increasingly influential component of the education lobby. Perhaps the most important, and certainly the lengthiest, testimony to both House and Senate Committees was given by Maurice B. Mitchell, president of Encyclopedia Britannica Films, Inc. Within a few moments of taking the stand, Mitchell showed a three-quarters of a minute long film demonstrating what happens to a bird when it flies. More than a dozen of these brief amendments to the title, such as including AV materials and equipment in other sections of the bill as well as in the Title VII section dealing with "school demonstrations of media use"; he also supported the concept of research and experimentation in Title VII. Conspicuous by its absence from his testimony was any mention of organizing an Institute to study media.[14]

Mitchell's testimony is singled out for his demonstrative use of the media, but he was only one of many other representatives of education, industry, foundations, and professional associations who spoke in support of the "media title". Typical of these others was C. R. Carpenter[15] who lamented that "capabilities of the mass mediums of communication have been largely developed and applied in the United States

---

[13] *Legislative History*, PL 88-864 (HR 13247).

[14] *Hearings*, U. S. Congress, House 85th Congress, First Session, 1958. Subcommittee on Education and Labor. January 8, 1958 through April 3, 1958, p. 1714; see also: *Hearings*, U. S. Senate, 85th Congress, First Session, 1958. Committee on Labor and Public Welfare, p. 1278.

[15] Professor and head of the Department of Psychology as well as Director of the Division of Academic Research and Sciences at Pennsylvania State University.

for purposes other than education, [and noted] that their full employment can effectively solve some, but not all, of the problems of our numerous and complex educational systems."[16] Two members of the "American Scientific Establishment,"[17] Detlev Bronk and Edward Teller, also spoke in support of communications media in their testimony; this is noteworthy insofar as the scientific community exerted considerable influence in Congress at that time.

NDEA Activities at USOE

Despite the welter of bills introduced into Congress during January-June 1958, it soon became obvious that the chief contenders were those being sponsored by the Administration and Messrs. Hill and Elliott. Realizing that some sort of compromise was inevitable, in late February, HEW Assistant Secretary Richardson addressed a memorandum to his colleagues on the subject of "major points of compromise with the Hill-Elliott bill," seeking their "suggestions for revisions." This tentative document revealed the close kinship of the two pieces of legislation and the apparent willingness of the Administration to "go along" with reasonable "modification or supplementation of S 3163.[18]

On May 6th, in a memo describing the principal issues raised between the Elliott and the Administration bills, the USOE Director of Laws and Legislative Branch characterized Title VII as "seriously questionable." Another memo dated May 16 indicated that the final fate of the media section had still not been determined when the two bills were merged in the House. On May 23, the compromise bill was reported out in the House with $8 million allotted for research in audiovisual educational media.[19]

The NDEA bills were submitted to a joint House-Senate committee. On August 21, 1958, the Conference Report indicated the resolution of the differences in the House and Senate versions. The revised version clearly established the Advisory Committee (a Senate recommendation) and limited the conduct of the program to grants or contracts. The Commissioner of Education

---

[16] *Hearings*, U. S. Senate, 1958, *op. cit.*, pp. 1288-96.

[17] Term suggested by D. S. Greeneburg, *The Politics of Pure Science*, p. 3.

[18] Holle, *op. cit.*, p. 122.

[19] *Ibid.*, pp. 123-155.

was deterred from carrying out any research or experimentation directly in the Office of Education. The last vestige of an OE based Institute was laid to rest.

When Senator Hill and Congressman Elliott introduced identical bills in their respective Houses, they had called for $5 million to be spent on the media title for the first year and $10 million for each of five successive years, for a total of $55 million.

The House scaled this down to a flat $2 million for four years, for a total of $8 million. The Joint Committee report recommended $3 million for the first year and $5 million for each of the next three years, or a total of $18 million.[20]

The Senate passed the NDEA by a vote of 66 yeas, 15 nays, 15 not voting; in the House the vote was 212 yeas, 85 nays, 313 not voting.[21] The National Defense Education Act of 1958 was signed into law by the President on September 7, 1958. Media had become a member of the education family vital to the national defense.

Legislative History of NDEA, Title VII, Following Its Enactment

By 1961, the act which provided a heretofore unheard of level of federal financial support for education was slightly over two years old, and ready for Congressional renewal. Experience had been gained in media research and dissemination; Title VII of the NDEA received considerable support from the educational community and the audiovisual industry. Industry had recognized a vast new market, the classroom, and begun its career as an important segment of the Congressional education lobby.

The Report of the Task Force Committee on Education was received by President-elect Kennedy on January 6, 1961. The Task Force Committee proposed NDEA extension for five years, and suggested that a new phase of assistance be initiated through federal support to the states for construction of ETV networks.[22]

---

[20]House of Representatives, Report No. 2688, August 21, 1958, pp. 32-33.

[21]*Congressional Record - House*, August 22, 1958, p. 17916, and *Congressional Record - Senate*, August 22, 1958, p. 17586.

[22]*New York Times*, January 7, 1961 (Task Force Committee appointed by Secretary of Hew, Arthur Flemming).

Speaking to a joint session of Congress, President Kennedy expressed the urgencies of the early sixties. He noted that American classrooms had an overflow of two-million children, taught by 90,000 teachers who were "not properly qualified," that one-third of the secondary school students qualified for college could not enter and that "we lack the scientists, the engineers, and the teachers our world obligations require."[23]

Support for extension and revision of Title VII was more conspicuous in committee hearings than in 1958. The Division of AudioVisual Instruction (DAVI) of the National Education Association (NEA) proposed providing grants to state departments of education for programs at local and regional levels to disseminate information about new educational media through demonstrations, workshops and consultation, and also establishing institutes for school media specialists and other supervisory personnel. DAVI proposed the extension of NDEA for another five years. This amendment was widely supported by industry, education, and the Office of Education.[24]

The National AudioVisual Association (NAVA) testified in favor of including teaching machines, test grading machines, and other AV aids under Title III, and urged that Title VII be extended to the local school level.[25]

Consultants to the Secretary of HEW and the U. S. Commissioner of Education also submitted testimony during the hearings. In their majority report, they recommended that the rate of authorization for Title VII be increased by $5 million to provide more support for demonstrations and related activities, and that the Federal Communications Commission be requested to continue to reserve television channels currently used for noncommercial broadcasting until further evidence

---

23 *House of Representatives Document #73.* 87th Congress, First Session, January 30, 1961. "The State of the Union" (Kennedy recommended NDEA extension for only one year).

24 *Hearings,* 87th Congress, First Session, U. S. Senate, Committee on Labor & Public Welfare. (N.1. throughout.) See especially: Don White, National AudioVisual Association, pp. 141-4; Wilbur Edwards, Encyclopedia Britannica, pp. 443-6; John Cuddington, Office of Education, p. 147. See also *Hearings,* 87th Congress, First Session, U. S. Congress, House of Representatives, Committee on Education and Labor, parts 1 and 2.

25 *Ibid.*, Senate, pp. 141-144.

was available as to the educational effectiveness of the medium.[26]

The 1961 hearings saw the beginning of attempts to include provisions for printed and published materials within Title VII.[27] Edward Booher, President of the McGraw-Hill Book Company, proposed that textbooks, reference works and maps be added. Encyclopedia Britannica opposed this, as did Sterling McMurrin, Commissioner of Education, who felt that "the vital thrust and purpose of the program would be dulled." McMurrin suggested that Title VII "might conceivably be discontinued" in the future if all important knowledge about employing the new media in education were considered to be available.[28]

The National Library Association, supported by NAVA, requested provision of funds for school libraries, including AV materials.[29] Both the National Council of Teachers of English[30] and the Modern Language Association[31] tied language learning to use of electronic and AV aids, including teaching machines, tape recordings, and ETV.

The Senate Committee on Labor and Public Welfare, in its Report, called Title VII a "frontier" undertaking, and noted that "a promising start has been made, but more time and

---

[26] *Ibid.*, pp. 559-561.

[27] *Ibid.*, pp. 361 and 746. Eight years later, McMurrin became the chairman of the Commission on Instructional Technology, which, partially under Title VII funds, would explore the role of technology in education.

[28] *Hearings*, 87th Congress, First Session, U. S. Congress, House of Representatives, 1961. Committee on Education and Labor, parts 1 and 2, p. 126.

[29] *Operation of the NDEA and Proposals for Its Extension* 87th Congress, First Session, 1961, p. 87 ff. See also p. 93 ff for digest of NDEA studies and reports regarding Title VII.

[30] 87th Congress, First Session. U. S. Senate. N.l., *op. cit.*, p. 370.

[31] *Ibid.*, p. 285.

funds are needed to bring this effort to fruition."[32] NDEA, with Title VII unchanged, was renewed for two years.[33]

The educational use of television was promoted also by the Senate Committee on Interstate and Foreign Commerce in the 87th Congress. The ETV Facilities Act amended the Communications Act of 1934 to establish a program of federal matching grants for the construction of television broadcasting facilities to be used for educational purposes. The House Committee on Rules delayed its passage; President Kennedy supported it.[34]

President Kennedy's message to Congress in 1963 proposing a draft bill to "strengthen and improve educational quality and educational opportunities in the nation" was extraordinarily comprehensive. By 1963, the impetus for educational reform previously provided by Sputnik had been replaced by the impetus of the war baby population boom and fear of shortfalls in quantity and quality of educational opportunity.[35] Eventually, two separate laws contained many of the Presidential proposals: PL 88-204, the "Higher Education Facilities Act,"[36] and PL 88-210, the "Vocational Education Act"--the latter encompassing, as Part B, the extension of the NDEA.

---

[32] *Senate Report No. 652.* 87th Congress, First Session, 1961, p. 34. In the Senate, S 2393 became PL 87-344 by yeas: 80, nays: 7; the vote in the House was yeas 342, nays 18.

[33] *Legislative History*, PL 87-344 (S 2393), 1961.

[34] *Legislative History*, ETV Facilities Act (Pl 87-447) (S 205) 87th Congress, Second Session, 1961.

[35] *Hearings Before the Subcommittee on Education and Welfare of the Committee on Labor and Public Welfare*, United States Congress. Senate, 88th Congress. First Session, 1963 p. 213. Testifying, Anthony J. Celebrezze, Secretary of Health, Education and Welfare, expressed the national mood: "It took a Russian Sputnik in 1957 to jolt the country out of its tranquillized state" of complacency about the educational system in the United States. Celebrezze spoke about shortages of qualified teachers, intensified by pressures of population growth, failure of 25 to 40 percent of able high school graduates to continue to college, need for adult education, and special education for the handicapped, as he urged federal support to stimulate local action.

[36] A"bricks and mortar" bill.

Stressing the "need for change" in education, the Willis Committee and Commissioner of Education Francis Keppel[37] included a recommendation that "the production of instructional materials for vocational courses be recognized as vital to an effective national program," and that one or more properly equipped instructional materials laboratories be established under the Office of Education.[38] Although he claimed no personal experience with media usage, Keppel considered the whole area of new media as one of lively debate serving a useful purpose in stimulation of progress.[39]

NEA urged the extension and strengthening of Title VII. NAVA endorsed this, expressing concern that insufficient funds had been supporting the amendment to introduce institutes that would train teachers, librarians, educational media specialists and school administrators in the use of the new educational media.[40] The president of the American Textbook Publishers Institute gave testimony favoring inclusion of the textbook provision in Title VII.[41]

In conference, the Senate and House expressed substantial agreement with the Senate,[42] and in the final version of the bill, NDEA Title III was amended to include test-grading equipment and "specialized equipment for audiovisual libraries"; and NDEA Title VII was amended to include "printed and published materials" along with television, radio, and other teaching aids. NDEA was extended through June 30, 1965.[43]

---

[37]Keppel, later, was to become very involved with the media and educational technology as the president of a major corporation dealing in this area.

[38]*Hearings*, 88th Congress, First and Second Sessions, 1963. U. S. Congress, House of Representatives, Vol. 3, pp. 107-108.

[39]*Ibid.*, p. 17.

[40]*Ibid.*, pp. 165-166.

[41]*Ibid.*, p. 161.

[42]*Enactments by the 88th Congress Concerning Education and Training, 1963-1964*. Washington, D. C.: U. S. Government Printing Office, October 1964, pp. 71-73.

[43]*Ibid.*, pp. 71-75.

In the second session of the 88th Congress, NDEA, including Title VII, was amended and extended for another three years on October 16, 1964.[44] The impact of Title VII, Section B, was, however, diminished by the addition in NDEA of Title XI, designed specifically to encourage institutes for teachers, including school librarians, and educational media specialists. Thus, the provision under Section B of Title VII for training manpower for the media field was recognized as limited. More training programs were required and Title XI was created to fill this need.

Table 1 compares the increases in appropriations for Title VII when compared to the overall increase for all programs under NDEA. The level of support for Title VII was "ever-changing" but essentially the same when compared with overall NDEA appropriations which continued to increase.

Table 1

APPROPRIATIONS

TITLE VII vs. TOTAL NDEA - (1959-1969)

| | TITLE VII (A & B) | TOTAL NDEA |
|---|---|---|
| 1959 | $1,600,000 | $115,300,000 |
| 1960 | 3,100,000 | 159,700,000 |
| 1961 | 4,730,000 | 187,480,000 |
| 1962 | 4,770,000 | 211,627,000 |
| 1963 | 5,000,000 | 229,450,000 |
| 1964 | 5,000,000 | 250,788,000 |
| 1965 | 4,963,000 | 348,603,000 |
| 1966 | 4,000,000 | 412,608,000 |
| 1967 | 4,400,000 | 446,357,000 |
| 1968 | 4,400,000 | *Spread into ESEA, etc.* |

*Transformed into Cooperative Research Act*

Transmitting his education program to the first session of the 89th Congress, President Johnson proposed "that we declare a national goal of full educational opportunity." He designated education, from pre-school through university, as "the number-one business of the American people," and proposed a series of specific actions to the Congress.[45]

---

[44] *Legislative History, PL* 88-665 (S 3060), 1964.

[45] *House of Representatives Document #45*, 89th Congress, First Session, January 12, 1965.

The subsequent Elementary and Secondary Education Act (ESEA) of 1965 (PL 89-10) and the Higher Education Act (HEA) of 1965 (PL 89-329) embody most of the presidential proposals. Together they brought innovation to all levels of formal education, and changed the American pattern of federal aid to education. ESEA moved toward the American ideal of universally equal education by emphasizing special programs for the "disadvantaged," and was the largest effort to date toward federal involvement in elementary and secondary education. HEA strengthened developing collegiate institutions, introduced a national Teachers Corps, brought the new media to the institutions of higher education, and provided assistance to libraries.

On the day of the Presidential education message, administration bills were simultaneously introduced in the House and Senate as "The Elementary and Secondary Education Act of 1965."[46]

In hearings, Commissioner of Education, Francis Keppel, mentioned the innovative accomplishments of Title VII of NDEA as "increasingly a part of modern education"; he also stressed the bill's emphasis on strengthening state departments of education (probably in anticipation of objections).[47]

Title VII of NDEA and the ETV Facilities Act had generated a constituency and a full-blown lobby for education by media. These new special-interest groups turned out to testify in both House and Senate. Testimony emphasized the usefulness of media, especially TV, in inner city education, the importance of training teachers for effective use of media, and of assuring the availability of up-to-date materials. Representatives of school systems already using ETV praised its usefulness as an aid to the teacher for conveying information, facts, ideas, and concepts. Title III--supplementary education centers and services--was the media focus. Congressmen expressed their

---

[46] *Legislative History PL 89-10 (HR 2362)*, 1965. Representative Carl Perkins of Kentucky introduced HR 2362, and S 370 was introduced by Senator Wayne Morse of Oregon for himself and 35 other Senators. See also: *Enactments by the 89th Congress Concerning Education and Training*, First Session, 1965. Washington, D. C.: U. S. Government Printing Office, 1966, pp. 6-9; *Hearings Before the Senate Committee on Labor and Public Welfare*, 89th Congress, First Session, 1965, pp. 31 ff.

[47] *Hearings Before the General Subcommittee on Education of the Committee on Education and Labor*, House of Representatives, 89th Congress, First Session, Vol. 1, p. 82.

appreciation to the educators, noting that inexperience with what can happen in the classroom handicapped their judgment on use of media.[48]

One week after introduction of the ESEA, the Higher Education Act of 1965 (HEA) was introduced;[49] it complemented the ESEA, in fulfillment of the Presidential requests. Following hearings in both the House and Senate, Representative Edith Greene introduced a new Higher Education Act bill [HR 9567, on June 30].[50]

The extensive HEA testimony urged specific mention of TV, videotape, film and other media within the various titles of the bill, both for library and classroom, and for continuing education of adults. The need for training teachers in the use of the new media was defined, with emphasis on teaching teachers to innovate. Language laboratories were identified as critical, as were campus media centers.[51]

A conference between the House and Senate Committees finalized the Act, which was passed on October 20 in both Houses, and signed by the President on November 8, 1965. The conference[52] agreed to include Title VI, the Yarborough Amendment, from the Senate version of the bill. The amendment was intended to improve the quality of college instruction through the use of audiovisual materials. Describing this addition, the Senate report noted that children who had been in the sixth grade in 1958, when the content and methods of their instruction began to be radically changed by NDEA Title VII,

---

[48] *Ibid.*, throughout. See also *Hearings Before the Senate Subcommittee on Labor and Public Welfare.* 89th Congress, First Session, Vols. 3 and 4, 1964.

[49] In the Senate as S 600 by Senator Morse, and in the House as HR 3220 by Representative Powell.

[50] *Legislative History*, PL 89-329 (HR 9567).

[51] *Hearings Before the House Subcommittee on Education of the Committee on Education and Labor*, House of Representatives, 89th Congress, First Session, 1965, Vols. 2 and 3; and *Hearings Before the Subcommittee on Education of the Committee on Labor and Public Welfare*, United States Senate, 89th Congress, First Session, Vol. 4, 1965.

[52] *House of Representatives, Rep. No. 1178.* 89th Congress, First Session, October 19, 1965.

would have found "a regression in instruction, instructional media, and instructional techniques" without Title VI.[53] Title VI provided a continuation of technological supplements in education at the college level; it offered to higher education what Title III of the ESEA offered at the elementary and secondary levels. Part A of the amendment provided for equipment grants, and Part B for faculty development programs. Title III of HEA included sharing of radio stations and computer facilities among developing institutions.

By 1965 more extensive and all-encompassing pieces of legislation took their place alongside the NDEA of 1958. With much higher levels of funding, they would require a massive reorganization of the administrative agency. Title VII, both by commission and omission, aided in the birth of programs in the field of educational technology; but in the 1965 reorganization of the U. S. Office of Education, it lost its specific identity and became merged with other programs, perhaps at a time when it could have begun to disseminate directly the fruits of the first five years of effort. Table 2 shows the growth and development of related programs between 1958 and 1968.

In 1966, the question of "books vs. bullets" became the critical issue for educators, who had become accustomed to and begun to rely upon a regular supply of federal funds, in particular for innovative projects and for programs to assist the poor and the disadvantaged. The educators' lobby rallied to Senate and House Committees to testify against cutbacks in federal funding during hearings on extension of ESEA and HEA.

Discussing the bills (HR 13160 and HR 13161) to extend ESEA another four years with the General Subcommittee on Education of the House, HEW Secretary John W. Gardner spoke of the supplementary education centers and services as promising "to do more to bring innovation and quality to dark corners of American education than any other legislative invention of our time."[54]

---

[53] *Senate Report #673*, 89th Congress, First Session, September 1, 1965, pp.56-57.

[54] *Hearings Before the General Subcommittee on Education of the Committee on Education and Labor*, House of Representatives, 89th Congress, Second Session, Vols. 3 and 4, 1966, p. 30.

TABLE 2

MAJOR LEGISLATION FOR SUPPORT OF NEW MEDIA AND TECHNOLOGY

*(includes legislation affecting or directly relevant to Title VII, NDEA)*

| TITLE | DATE SIGNED | LAW NO. (BILL NO.) | INTRODUCED BY | EFFECT ON MEDIA | DIRECT EFFECT ON TITLE VII |
|---|---|---|---|---|---|
| National Defense Education Act | Sept 7 58 | PL 88-864 (HR 13247) | Hill Elliott | III-strengthening math, science, language instruction | Established Title VII |
| NDEA Amendments 1961 | Oct 3 61 | PL 87-344 (S 2393) | Hill Elliott | | 2-year NDEA extension |
| ETV Facilities Act | May 1 62 | 87-447 (S 205) | Magnuson (Committee Interstate & Foreign Commerce | ETV construction; matching grants with states | -- |
| Vocational Education Act of 1963 (NDEA Amendments) | Dec 18 63 | 88-210 (HR 4955) | Perkins | III-includes test grading and av library equipment | 1-year NDEA extension VII: to include "printed and published materials" |
| NDEA Amendments of 1964 | Oct 16 64 | 88-665 (S 3060) | Morse | Title XI-institutes for teachers; includes "educational media specialists" + school librarians, English & social science | 3-year NDEA extension |
| Elementary &Secondary Education Act | Apr 11 65 | 89-10 (HR 2362) | Morse Perkins | Titles I, II, III, IV Amends Cooperative Research Act | -- |
| Higher Education Act of 1965 | Nov 8 65 | 89-329 | Morse Powell Green | Title VI: A. equipment:AV + TV B. faculty dev. - institutes | -- |
| Elementary &Secondary Education Amendments 1966 | Nov 3 66 | 89-750 (HR 13161 | Perkins Morse | ESEA VII: "Dissemination of information by Commissioner to State, local, educational agencies + others Amends Coop Research Act research through contracts as well as grants and consolidates research authority new Title VI: education of the handicapped Title III: Adult Education Act of 1966 (grants to ... ETV stations, use of innovative methods, system materials .. | -- |
| Higher Education Amendments of 1966 (NDEA Amendments) | Nov 3 66 | 89-752 (HR 14644) | Green | NDEA III: includes industrial arts | VII through FY 68 |
| Educational Professions Development Act | June 29 67 | PL 90-35 | Perkins | Higher Education Act Amendment: V-c: educational media "including educational + instructional tv and radio" | -- |
| Public Broadcast Act of 1967 | Nov 7 67 | PL 90-129 | Magnuson (Commerce + Communications) | ETV construction Corporation for Public Broadcasting | -- |
| Elementary &Secondary Education Amendments 1967 | Jan 2 68 | PL 90-247 | Brademas Morse | ESEA VI: Education of Handicapped Act: research, production, distribution educational media ESEA III: emphasis on innovative Amends Cooperative Research Act | NDEA VII; no change from appropriations through June 30 1968 |
| Higher Education Amendments of 1968 | Oct 16 68 | 90-575 (S 3769) | | Title VIII (new): Networks for Knowledge Higher Education Act VI: Instructional computers eligible; new section 1206 "Dissemination of Information by Commissioner" | NDEA VII: permitted to expire (also VB + XI) |

An Office of Education representative noted that 19 of the 34 approved state plans provided for up to 25 percent of Title II allotments on films, tapes, and other instructional materials.[55] In its written reply to the questions of Senator Morse, the Office of Education explained its dissemination of research findings under the legislative authority of the ESEA of 1965, and stressed two programs that had their origins in Title VII projects:

1. The National Program of Educational Laboratories,[56] regionally based, and providing links between educational research and the classroom implementation of programs based on that research, and

2. The Educational Resources Information Center (ERIC), designed to acquire, abstract, index, store, retrieve, and disseminate on a nationwide basis "the most important and significant educational research and innovative educational ideas to educators throughout the nation."[57]

Commissioner of Education Harold Howe presented his fiscal information using visual aids. He pointed to the effectiveness of programmed instructional materials developed under Title VII, and mentioned research at Harvard directed toward understanding the effect of psychological, social, cultural, ethnic, and other differences on the learning process.[58]

Witnesses calculated the cost per child for instructional materials as approximately $6.00, and deplored the effect of increasing costs of books and materials as diluting the effectiveness of government assistance. The importance of keeping library and media materials up-to-date was stressed,

---

[55] *Ibid.*, p. 165.

[56] The blueprint for these had come out of a Title VII-B project. The labs were provided by the Cooperative Research Act amendments of Title IV of ESEA.

[57] *Hearings Before the Subcommittee on Education of the Committee on Labor and Public Welfare*, United States Senate, 89th Congress, Second Session, Vols. 3, 4 and 5, 1966, pp. 285-286.

[58] *Ibid.*, p. 650.

and a new plateau of considering media usage as a process, a technology, or a new methodology was attributed to Congressional support.[59]

The Higher Education Amendments of 1966, including NDEA amendments, became PL 89-752 in November 1966. Title VII remained unchanged.

In his message on Education and Health in America,[60] President Johnson told the 90th Congress, "Noncommercial TV can bring its audience the excitement of excellence in every field," and recommended that the Congress enact the Public TV Act of 1967 to triple the current appropriation and to create a Corporation for Public TV, to support non-commercial TV and radio. He also recommended legislation to authorize a major study of instructional TV. The President directed that the NSF, working with the Office of Education, establish an experimental program "for developing the potential of computers in education."[61]

The Higher Education Act, the ESEA, and the ETV Facilities Act came up for amendment in 1967. Cutbacks in funding again disturbed the legislators and witnesses.

The ETV Facilities Act became the Public Broadcasting Act of 1967, through the Committee for Commerce and Communications.[62]

While testifying on the amendments to the ESEA, Commissioner of Education Harold Howe noted the work of the 11 Research and Development Centers, of the 20 Educational Laboratories (ESEA Title IV), and of their companion project for dissemination of findings--ERIC. He praised the use of new educational media and also noted the more than 40 two-to three-day workshops and three six-week institutes to provide teacher training in the most advantageous use of a multi-media approach. He explained NDEA Title VII and noted that, of the approximately 375 projects supported under Part A, 215 were completed and of the 253 supported under Part B, 195 were completed. The Office of Education did not request extension of the authorization for Title VII, but Howe said, "its activities may

---

[59] *Hearings*, Senate and House, 1966, *op. cit.*, throughout.

[60] February 28, 1967.

[61] *Hearings Before the General Subcommittee on Education of the Committee on Education and Labor*, House of Representatives, 90th Congress, First Session, 1967, p. 25.

[62] *Legislative History*, PL 90-129.

be funded under the authorization for the Cooperative Research Program.[63] The Office of Education made special note of its inclusion of all handicapped persons within media programs.[64]

DAVI failed to mention NDEA Title VII in its written testimony, but supported "in full" the extension of ESEA Title III for five years and discouraged the subsumption of Title III into ESEA Title V on the grounds that "the educational media field, a wide range of educational innovations, and the schools themselves [would] suffer as a consequence." Its representative urged that programs for the preparation of media specialists under Title XI of NDEA not be decreased. He quoted Congressman John Brademas:

> *We vote money for these vast programs on the blithe assumption that the highly trained professional and scientific personnel required to perform this research will drop out of the skies.*[65]

Senator Morse, in a statement prepared for the Senate Committee on Appropriations, urged that the full $5 million be requested for NDEA Title VII, protesting the 12 percent cut and suggesting that the $600,000 be spent on training of teachers in the use of the new media. He distinguished between this proposal and the Title XI NDEA authorization providing for institutes for educational media specialists: "Classroom teachers...could be better prepared skillfully to use the media in their subject matter courses."[66]

Senator Morse referred to "those who teach our teachers" in justifying his request for continued support of HEA Title VI, and its indirect effect on primary and secondary education.[67] He also suggested that the Bureau of the Budget's failure to support Title VII of NDEA was an

---

[63] *Hearings*, House, 1967, *op. cit.*

[64] *Ibid.*, p. 67.

[65] *Ibid.*, p. 196, Vol. 4. Ronald Uhl testifying for DAVI.

[66] *Hearings Before the Subcommittee on Education of the Committee on Labor and Public Welfare*, U. S. Senate, 90th Congress, First Session, 1967, Part 3, pp. 1274-1296.

[67] *Ibid.*, p. 1286.

"oversight"--a 1966 amendment had provided a modest $2 million program for disseminating information in the field of education.[68]

Title VII, still defended by congressmen, was beginning to lose its lobby, by those who saw larger provision of assistance for media development in ESEA and HEA, and who realistically observed that the administration would no longer give full support to Title VII.

The 1968 Amendments to the Higher Education Act of 1965 included a new Title VIII--"Networks for Knowledge." Title VIII was intended to "encourage colleges and universities to share, to an optimal extent, through cooperative arrangements, their technology and other educational and administrative facilities and resources...."[69]

Projects to be supported included:

1. The joint use of facilities such as classrooms, libraries, or labs, including books, materials and equipment; also providing access to specialized library collections through the preparation of suitable media for electronic or other taped transmission of materials;

2. The establishment and joint operation of closed-circuit TV or equivalent transmission facilities;

3. The establishment and joint operation of electronic computer networks and programs to be made available for such purposes as financial and student records, student course work, or transmission of library materials.[70]

Commissioner Howe referred to the nearly 1,300 consortia existing between institutions of higher learning, and explained that the new Title VIII of HEA was designed to encourage such resource-sharing.[71]

---

[68] *Ibid.*, p. 1295

[69] *Enactments of the 90th Congress Concerning Education and Training*, Second Session, 1968, pp. 114-115.

[70] *Ibid.*

[71] *Hearings of the Subcommittee on Education of the Committee on Labor and Public Welfare*, U. S. Senate, 90th Congress, Second Session, Vol. 1, 1968, p. 838.

DAVI suggested "subjective quality standards" be applied in evaluating proposals under Title VI-A of HEA and noted that within Title VII of NDEA, Part A had been "successfully absorbed" under the Cooperative Research Act. Part B of Title VII providing for dissemination of the new media and its research, had not been continued,

> *nor, in our judgment will it be adequately handled through ERIC. It is our opinion that Part B of this section has never been administered in ways that have effectively reflected the intent of the Congress. Although the ERIC centers will indeed make pertinent educational research more readily available to the educational community, such research is not reported in a form which can be readily interpreted and applied by busy school administrators.*[72]

The DAVI representative urged revitalization of Title VII-B through the Educational Professions Development Act or other appropriate means, to benefit regional Research and Development Centers, and, most importantly, school people themselves.

The Institute Program of Title VI-B of the Higher Education Act of 1965, was observed as doing "Much to revitalize and expand the interest and leadership of higher institutions in teaching and learning methods and materials," and holding potential for "continued broadening and strengthening" of education from primary through adult levels."[73]

Commissioner Howe explained the Networks for Knowledge and suggested that it had originated when he and Secretary Gardner agreed two years previously that the developing networks "seemed to neglect the professor in his classroom."[74]

The National Association of Educational Broadcasters (NAEB) expressed enthusiasm for the concept of Networks for Education and they noted that the "central theses of NAEB's educational communications concept [is] that electronic communications systems designed for institutional cooperation

---

[72] *Ibid.* Charles Shuller testifying, pp. 849-60.

[73] *Ibid.*

[74] *Hearings Before the Special Subcommittee on Education of the Committee on Education and Labor*, House of Representatives, 90th Congress, Second Session, 1968, p. 122.

reach optimum efficiency if they are multiple-purpose facilities rather than separate, unrelated technical arrangements."[75]

NAEB saw the Networks for Knowledge in context with the Public Broadcasting Act of 1967 and its Corporation for Public Broadcasting which had provided the prerequisites for Networks, and suggested that copyright laws be revised to facilitate the exchange of materials within the Networks. (Again, portions of the NAEB efforts were supported by Title VII grants.)

Another witness noted that, among the lessons learned from federally-supported educational media programs, "such as NDEA VII, ... is [the fact] that software is far more important and should have higher priority than hardware."[76]

The Senate Committee on Labor and Public Welfare recommended extension of NDEA Title VII for four years, through fiscal year 1972, with $5 million appropriated for each of the years. The Conference Report, however, included major changes affecting the use of educational technology:

1. The Higher Education Act of 1965 was amended by a new Section 1206 entitled "Dissemination of Information." This empowered the Commissioner to prepare and disseminate reports on programs and research and experimentation conducted under NDEA, the Higher Education Facilities Act, and other acts.

2. Titles VII, V-B and XI of NDEA were among those titles permitted to expire.

3. Activities of Part B of Title VI of the Higher Education Act were moved to EPDA. Instructional computers became eligible under Title VI. The Commissioner of Education was required to consult with NSF about policy governing purchase of equipment for education in the natural and physical sciences.[77]

---

[75]*Ibid.* Studies of information networks were undertaken in Oregon, Texas, Minnesota, Indiana, Iowa, Illinois, Missouri, and New York; p. 833. James Fellows testified for NAEB.

[76]*Ibid.* John Meaney, Notre Dame University, p. 859.

[77]Higher Education Amendments of 1968. Conference Report. House of Representatives Report #1919, 90th Congress, Second Session, September 25, 1968.

A germinal program of modest proportions, NDEA Title VII had had its day.

## Conclusions

Title VII of the National Defense Education Act served as an innovative instrument, whose thrust was carried on through other, larger, educational legislation. Before Title VII, educational use of the new technological means of instruction was an obscure concept: Limited experience in this field before 1958 produced a small supply of testimony to its effectiveness. However, the traditional classroom with its traditional teacher using traditional texts--one of the most favored American symbols--was an image that resisted change.

For the Congressmen themselves, most of whom came from professions other than education, the classroom was familiar only by memory; one may judge that the sparsity of questioning and debate over Title VII in its early years was due in some part to the lack of knowledge sufficient to provoke inquiry in depth.

Industry played a two-sided role in Title VII. On the one hand, seeing the classroom as a new and vast market, representatives of business lobbied educators and congressmen with their attractive new wares; Title VII might have faded more quickly without their efforts to develop it. On the other hand, they were businessmen and their primary concern was not to integrate technology into the classroom toward the full intellectual development of students; they, therefore, often concentrated on selling isolated pieces of technology, rather than on revolutionizing education through the use of the new media. The shortage of software, for example, may be blamed upon problems of copyright, but without an adequate choice of appropriate films, slides, etc., provided by the industry, no revolution in education was possible. In other words--the shortage was *not* due to copyright problems but was simply an industry shortage. There were not enough validated instructional sequences to place in the machines.

Educators themselves were attracted by, but unfamiliar with, the new media. Presumably the war baby boom and the logistical problems brought on by overcrowded classrooms and new school construction kept educators overloaded with the burdens of sheer maintenance. But educators, and schools of education retained many of the American symbolic concepts of education; innovation via TV in the classroom was not a serious option for many in the early days.

The concept of educational use of media was slow to take hold in the Office of Education as well. Able but inexperienced personnel were assembled to pilot the program, and commitment to it did not prevail throughout the office. Thus OE may be said to have assumed a functionary, rather than a leadership, role in the life of Title VII.

Despite these handicaps, Title VII may be judged to be a success. Convinced innovators in Congressional education committees, in industry, and among educators, kept it alive and moved its influences into broader educational legislation.

The turning point for the media came in 1965, with the Elementary and Secondary Education Act, and the Higher Education Act. Their various titles in turn provided for media use throughout the years of formal education, and for the first time a large lobby testified in Congress. Although the size and scope of the acts were such as to begin to overwhelm and diffuse any specific impact of Title VII projects, it is obvious that without the existence of Title VII, the support and experience with media would have been lacking. The education lobby would not have concentrated on the new technology as much as it in fact did.

By the mid-1960's, the skeletal ideas provided under NDEA Title VII, parts A and B, were being translated into more ambitious programs, and modified to provide greater fiscal support for purchasing the new media and technology. The new legislation increased monies for training and established new vehicles to conduct research and dissemination.

Congressional testimony in 1968 provides a striking contrast to 1958, both in scope and level of commitment to educational technology and in a funding level encompassed by all the acts that perhaps even the original architect of Title VII could not have predicted. (Table 3 reflects the approximate levels of appropriations for media during the life of Title VII.)

Title VII served as a forerunner of more extensive ideas and programs. These led to its absorption in a much larger administrative structure within USOE, and eventually to its demise, with the emergence of other programs with larger budgets and greater support. (See Table 4.) It lost its specific identity just when it might have begun to disseminate directly the fruits of the first five years of effort.

TABLE 3

ESTIMATED OBLIGATIONS FOR INSTRUCTIONAL (audiovisual) MATERIALS [developed from U.S.O.E. Reports]

| FISCAL YEAR | | 1959-1962 | 1963 | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970* |
|---|---|---|---|---|---|---|---|---|---|---|
| NDEA | III | $ | $ | $ 6,514,800 | $ 5,993,900 | $5-6,000,000 | $ 9,000,000 | $ 10,444,780 | $ 10,000,000 | $ 0 |
| | I | | | | | 30,000,000 | | | | 0 |
| | II | | | | | 12,000,000 | | | | 0 |
| ETV FACILITIES | | | 6,440,000 | 6,440,000 | 6,440,000 | 6,440,000 | 6,440,000 | 0 | 4,000,000 | 4,000,000 |
| CAPTIONED FILMS FOR DEAF | | | ? | 645,000 | 645,000 | 1,703,000 | 1,110,230 | 1,037,289 | 1,920,000 | 2,220,000 |
| VOCATIONAL EDUCATION | | | | 5,000 | 17,100 | 42,000 | 80,000 | 100,000 | 150,000 | 165,000 |
| PUBLIC LIBRARIES - COMMUNITY SERVICE | | | | 6,000 | 43,900 | 110,000 | 922,000 | 1,000,000 + 21,000 Adult Ed | 1,000,000 + 25,000 Adult Ed | 490,000 + 25,000 Adult Ed |
| HIGHER EDUCATION | I | | | | | 6,000 | 6,060 | 6,060 | 6,000 | 6,000 |
| | II | | | | | 160,000 | 6,126,672 | 6,369,219 | 6,730,000 | 3,365,000 |
| | VI | | | | | 700,000 | 4,000,000 | 5,190,159 | 6,600,000 | 0 |
| HANDICAPPED ESEA | I | | | | | 30,000,000 | 15,000,000 | 24,500,000 | 22,000,000 | 22,000,000 |
| | II | | | | | 12,000,000 | 21,400,000 | 23,000,000 | 14,000,000 | 0 |
| | III | | | | | 5,000,000 | 7,000,000 | 8,000,000 | 8,500,000 | 6,030,000 |
| TEACHER EDUCATION | | | | | | 82,000 | 82,000 | 82,000 | 83,500 | 88,000 |
| R & D | | | | | | 21.935 | 42,510 | 21,935 | 19,680 | 18,724 |

*NO SEPARATE BREAKDOWNS AVAILABLE, AVERAGE ANNUAL EXPENDITURE 50 MILLION*

* Revised Nixon Estimates

TABLE 4

CHRONOLOGY OF LEGISLATION AFFECTING EDUCATIONAL USE OF THE MEDIA

*(includes major and minor legislation - 1958 - 68)*

| | | |
|---|---|---|
| 1958 | PL 85-864 | National Defense Education Act-Title VII |
| 1961 | PL 87-344 | NDEA Amendments |
| 1962 | PL 87-447 | ETV Facilities Act |
| | PL 87-715 | Educational and Training Films for the Deaf |
| | PL 87-786 | Donations to Educational Radio and TV |
| 1963 | PL 88-204 | Higher Education Facilities Act |
| | PL 88-210 | Vocational Education Act of 1963 (and NDEA Amendments) |
| 1964 | PL 88-665 | NDEA Amendments, 1964 |
| 1965 | PL 89-10 | Elementary and Secondary Education Act |
| | PL 89-329 | Higher Education Act of 1965 |
| | PL 89-258 | Loan Service of Captioned Films and Other Educational Media for the Deaf |
| 1966 | PL 89-750 | ESEA Amendments of 1966 |
| | PL 89-752 | Higher Education Amendments of 1966 |
| | PL 89-634 | Agreement for Facilitating International Circulation of Visual and Auditory Materials |
| | PL 89-651 | Facilitates International Flow of Educational ... Materials |
| 1967 | PL 90-35 | Educational Professions Development Act |
| | PL 90-129 | Public Broadcasting Act of 1967 |
| | PL 90-247 | ESEA Amendments of 1967 |
| 1968 | PL 90-575 | Higher Education Amendments of 1968 (Networks for Knowledge Act of 1968) |
| --- | --- | --- |
| 1969 | passed House April 27 | ESEA Amendments 1969 |
| | S 1189 | Educational Technology Act (Yarborough) (no hearings as of November 5, 1969) |

FACTS ABOUT THE EXPENDITURE OF MONIES:

ONE PROFILE OF THE ACT

The $40.3 million expended under Title VII was divided almost evenly between Part A (research) and Part B (dissemination). The ratio was approximately 48 percent to 52 percent in favor of Part B (see Figure 1). Certain large dissemination grants were made toward the end of Title VII which affected the final ratio (for example, over $1 million went to the instructional television libraries, and $1 million to help develop the children's television program "Sesame Street," a project designed to provide preschool instruction primarily to culturally disadvantaged youngsters). From 1958 through 1962, the major expenditures were on Part A. When the research results began to be reported in 1963, the weight of spending shifted to Part B since there was now more knowledge, techniques, etc., to disseminate (see Figure 1).

The amount of money provided for Title VII bought more than 600 projects that were funded through grants and contracts. It is necessary to state the number approximately because the records were not in every case complete, and sometimes it was uncertain whether a recorded grant was for continuation of a project or for a new project.

As the next chart illustrates (Figure 2), about half of the projects were field or laboratory research efforts (surveys, experiments, field tests, and case studies), and another very large group was for development, planning, and design studies. Fifty-seven conferences and workshops were also financed under the Title.

Where were the studies conducted? Overwhelmingly in colleges and universities, as Figure 3 shows.

Although most of the studies were done at universities, as subject matter the studies concentrated on elementary and secondary, rather than on higher education. This is illustrated in Figure 4.

How were the studies distributed among the instructional media? Significantly, the largest block of money was allocated for combinations of media--a step toward the "systems" approach to use of learning resources--which appeared as one of the novel and important points of emphasis resulting from the educational ferment of the 1960's (see Figure 5). Among individual media, the largest amounts went to instructional television which was moving into the schools during the life

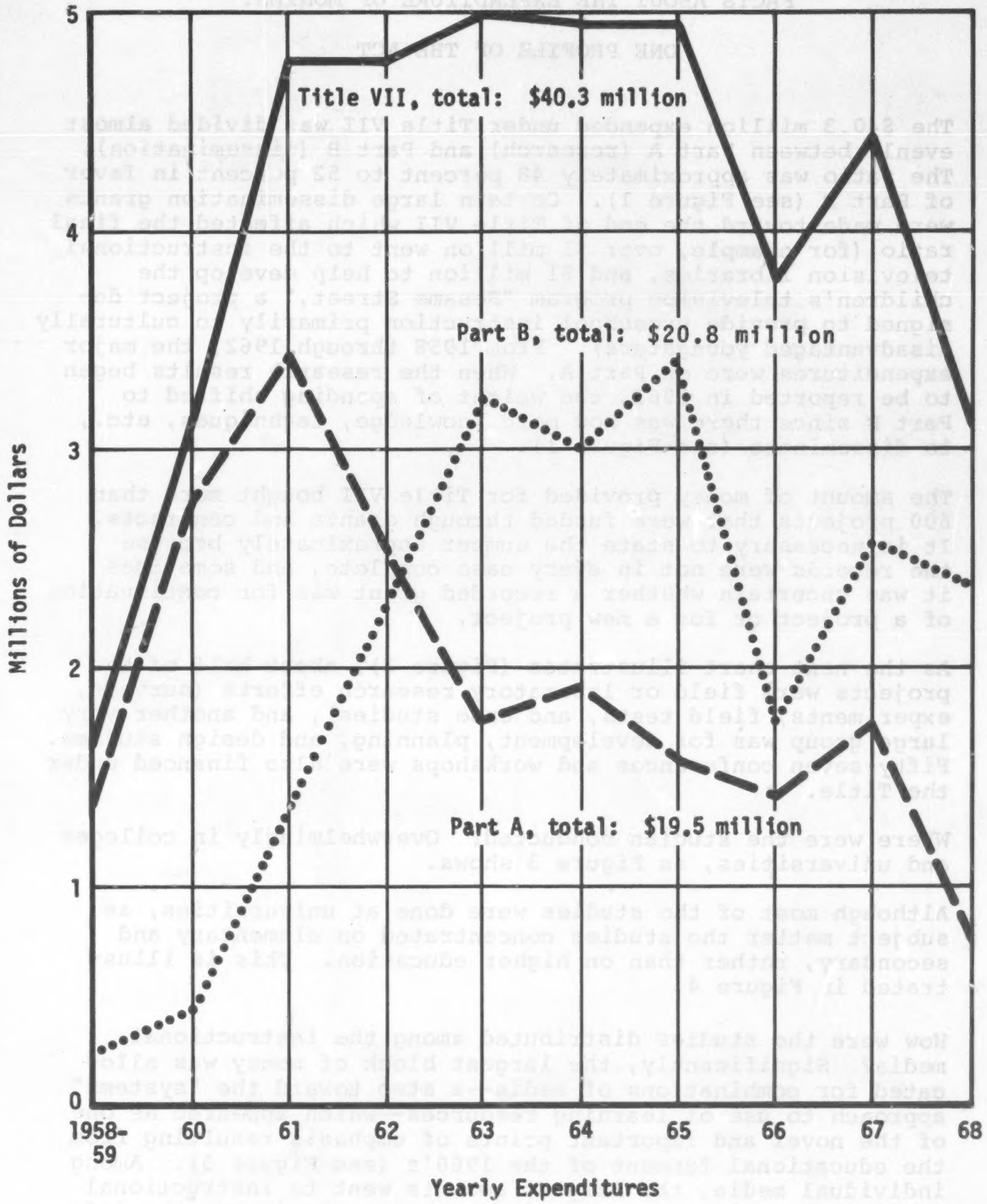



Fig. 1. Expenditures on Title VII, Parts A (----) and B (.....), for the ten years 1958 to 1968.

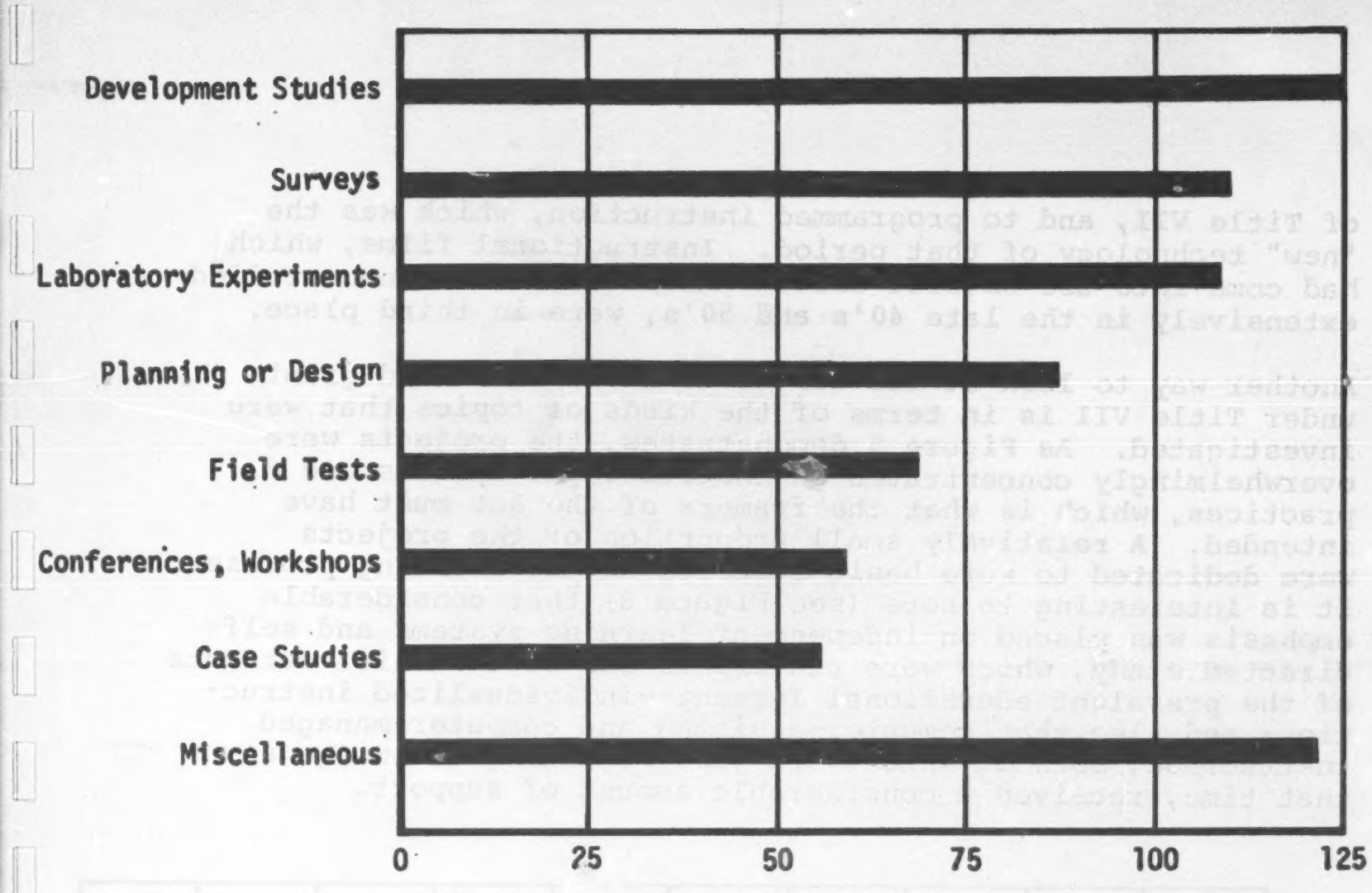



Fig. 2. Distribution of Title VII Projects by Types

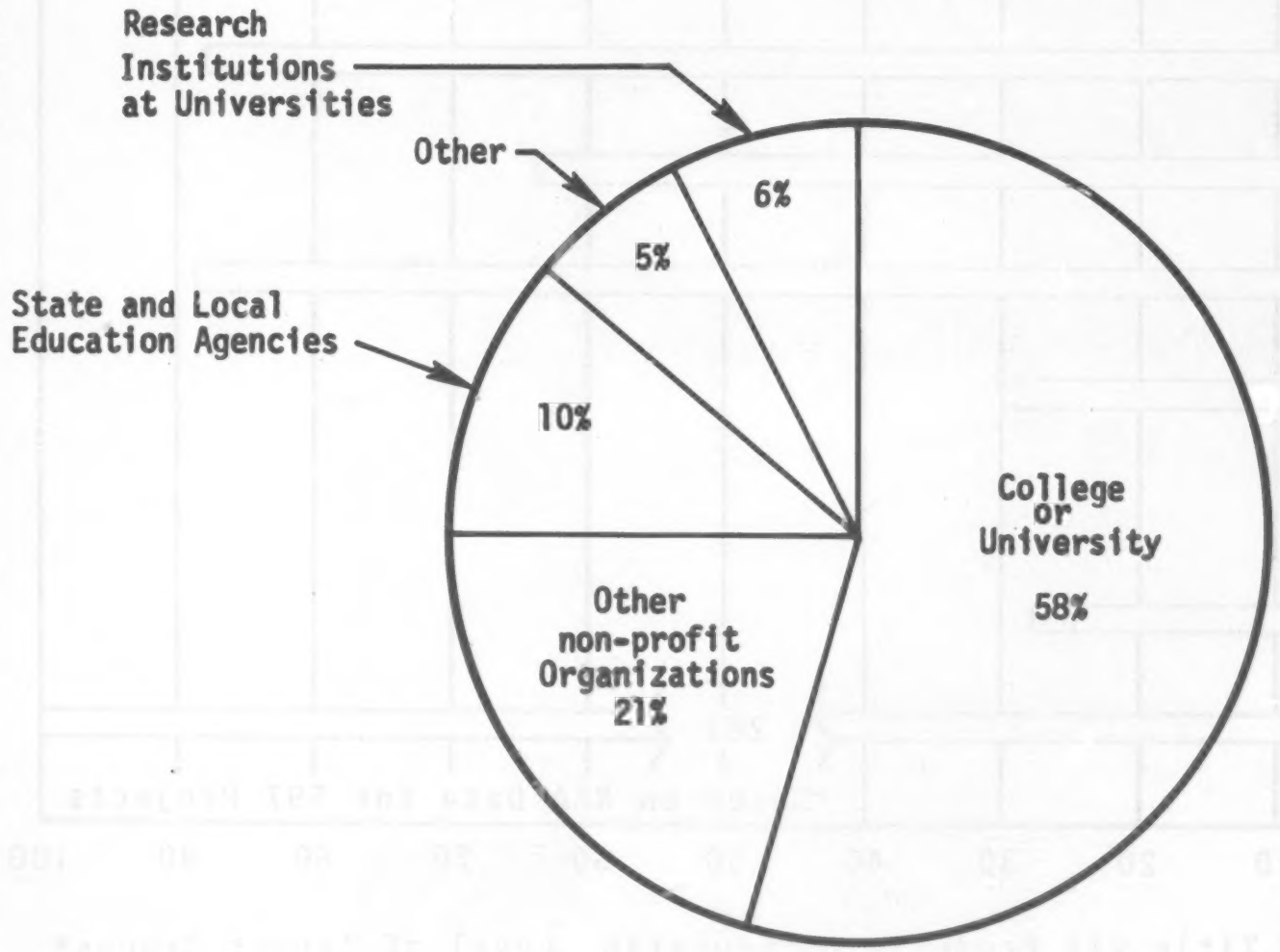



Fig. 3. Distribution of Title VII Projects by Type of Organization

of Title VII, and to programmed instruction, which was the "new" technology of that period. Instructional films, which had come into use several decades earlier and had been studied extensively in the late 40's and 50's, were in third place.

Another way to look at the distribution of funds and grants under Title VII is in terms of the kinds of topics that were investigated. As Figure 5 demonstrates, the projects were overwhelmingly concentrated on instructional systems and practices, which is what the framers of the Act must have intended. A relatively small proportion of the projects were dedicated to more basic research in the learning process. It is interesting to note (see Figure 8) that considerable emphasis was placed on independent learning systems and self-directed study, which were central to one of the chief currents of the prevalent educational ferment--individualized instruction; and also that computer-assisted and computer-managed instruction, both of which were just beginning to emerge at that time, received a considerable amount of support.

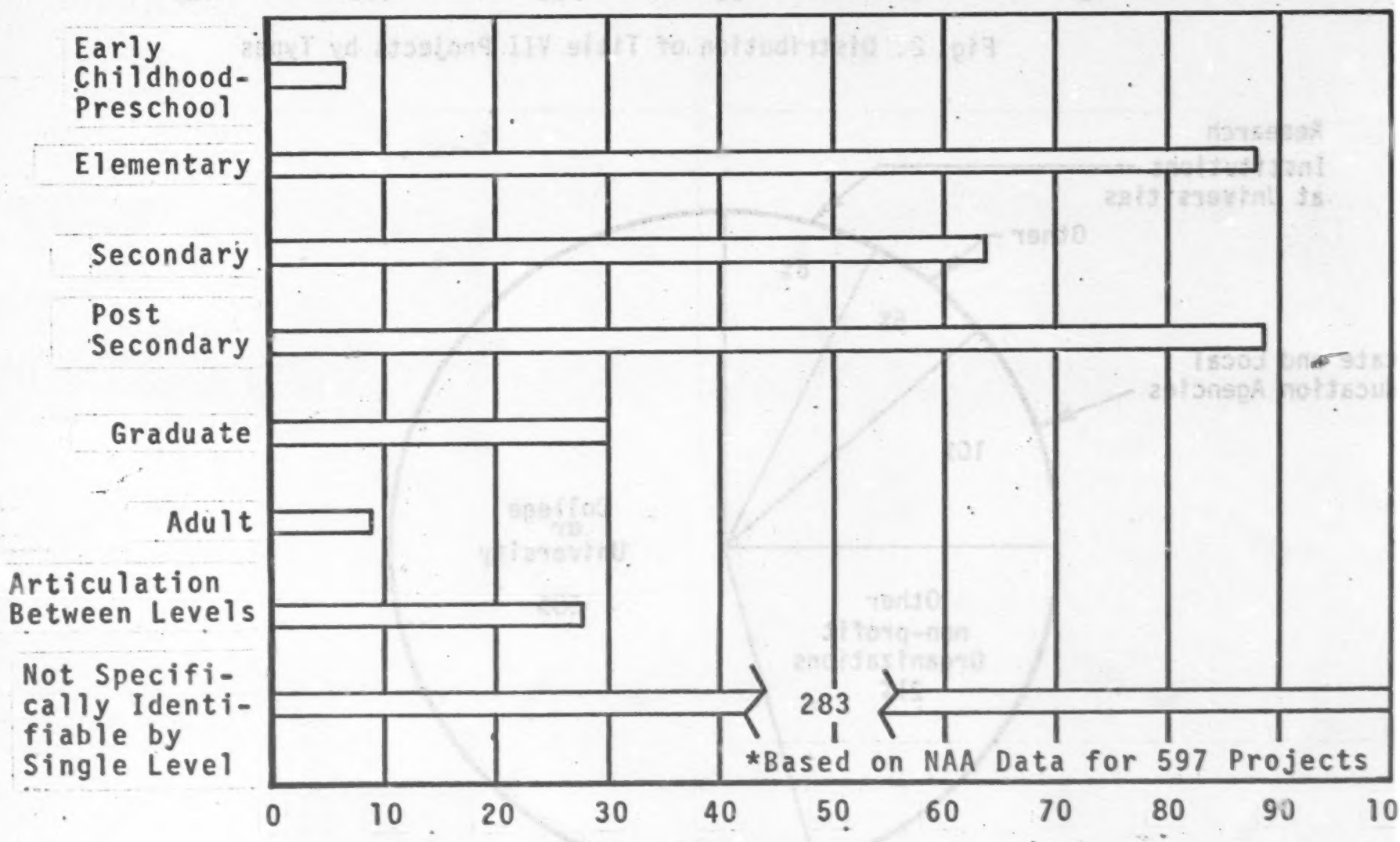



Fig.4. Title VII Projects by Education Level of Target Groups*

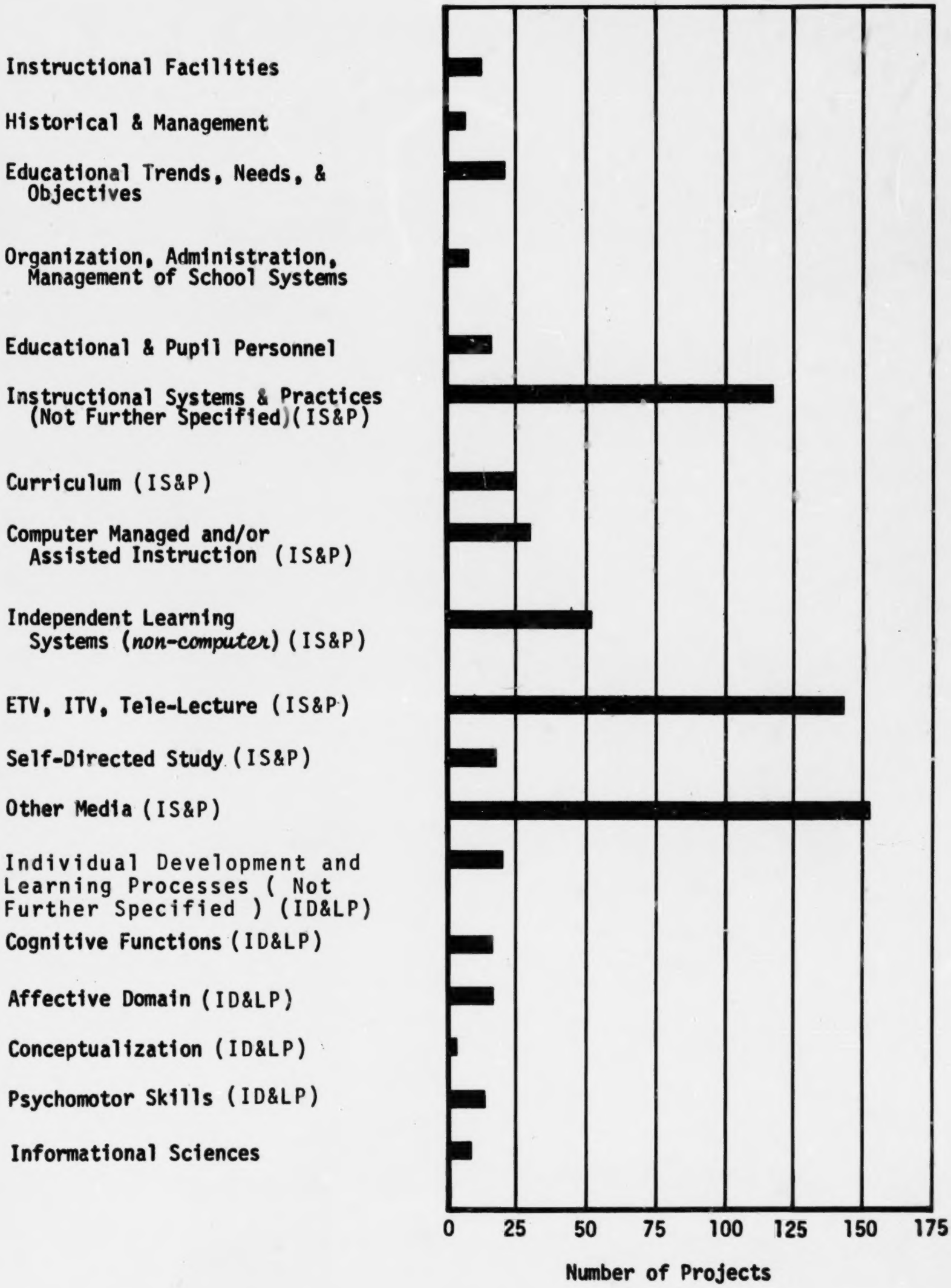



Fig. 5. **Approximate Proportions of Title VII Projects by Topics**

# TITLE VII IMPACT ON UNIVERSITY MEDIA DEPARTMENTS AND UNIVERSITY RELATED ORGANIZATIONS

One potential impact of Title VII was its effect on the growth and development of media or instructional/educational technology departments in universities.[1] Six institutions were examined to ascertain the effect, if any, of the presence of Title VII grants and contracts on the growth of instructional media-oriented departments. Two key criteria for selection were employed: the fact that at present the department is of substantial size and is generally recognized as being among the "best" in this field and/or the fact that a considerable amount of the project monies that were received by the indicated department during the period from 1958 to 1968 were under NDEA Title VII.

Case studies were developed for five departments and one university-related research center. These were the University of Southern California; Michigan State University; Teaching Research Division, Oregon State System of Higher Education; Syracuse University; Pennsylvania State University; and Indiana University. In addition, a brief review of the impact of Title VII on the National Instructional Television Center, currently based at Indiana University, Bloomington, Indiana, is also undertaken.

## University of Southern California

The Instructional Technology Department in the School of Education, University of Southern California, was examined for Title VII impact. Until 1961, it was known as the Audio-Visual Department. In addition to undergoing a change of name, the department has made other changes and advances within the last ten years. This decade saw approximately $1,140,984.00 of Title VII monies which were received by the Instructional Technology Department, and the personnel worked on some 20 Title VII projects.

---

[1]This portion of the report draws heavily on information contributed by Dr. Charles F. Schuller, Director of the Instructional Media Center, Michigan State University; Dr. James H. Beaird, Director of the Teaching Research Division of the Oregon State System of Higher Education, Monmouth, Oregon; Dr. L. C. Larson, Associate Dean of the School of Education, Indiana University; and Dr. Edwin Cohen, Director, National Instructional Television Center. The above four contributors provided detailed information regarding their departments and groups.

The head of the department during this period, Dr. James Finn, was instrumental in securing many of the projects, and he directed both the Technology Development Project (TDP) and the Instructional Technology and Media Project (ITM). The TDP was a theoretical study and its major objectives were:

1. to develop a unified point of view by which trends in the rapidly developing technology of instruction could be understood, assessed, predicted, and assimilated into educational systems in the United States;

2. to outline the problems teachers faced when considering the trends of technological developments; and, the predictable technological developments in education; and

3. to suggest guidelines that would enable educators to use and give effective direction to those technological developments which offered the potential of greater efficiency in teaching and learning.

Monographs and occasional papers were produced to meet these objectives. Two planning contracts led to the development of the major Technological Development Project study initiated in 1960 and concluded in 1963. The University of Southern California was a subcontractor for the National Education Association, which was the principal contractor.

A later effort commencing in 1963, the ITM, was a threefold project consisting of:

1. the planning and editing of approximately ten scholarly monographs focusing on the new media;

2. the production of three motion pictures and the planning of two others, all designed to disseminate information about the use of the new media and developments in the field; and

3. the surveillance, study and reporting of technological developments as they affected American education.

This, in effect, was an attempt to continue some of the functions of the TDP, and a rapid retrieval system was developed in order to make immediately available hard to obtain reports, prototype software, equipment, etc. The project utilized a sum of $309,472 dollars.

Other Title VII projects associated with the department included:

The Southern California Automated Cataloging project: a $113,000 project to determine the feasibility of establishing a center for preparing catalogs of instructional materials for organizations in eight counties of Southern California. Standards were developed for input of material that could be used in a computer, and page layouts for a catalog were designed. A number of catalogs were converted for computer printout and the catalogs were reproduced and distributed.

A 1961 study described the practices in the fields of new educational media and audiovisual services of 50 state departments of education. Directed by Francis Noel, this $163,403 project involved developing a summary of national patterns of activities in state departments of education, as well as individual descriptive reports of each state's activities, comments and observations in reference to the role of state departments of education in media and audiovisual education activities.

Dr. William Allen, director of research, Department of Cinema, and adjunct professor, Department of Instructional Technology, played a major role in Title VII activities of the department. In addition to being editor of *Audio-Visual Communication Review*, which abstracted over 300 Title VII projects under contract to the Office of Education, he has directed and carried out nine Title VII projects totaling $423,358. These projects include two Part B (dissemination) projects of an analysis of research under Title VII and preparation of a course of study for research information theory in educational media research. Other projects dealt with the learner response, feedback, and review in a cinematic presentation, the effectiveness of different combinations of visual and verbal presentation modes, motion variables in film presentation, nonlinearity variables in cinematic presentation, and similar efforts. Significantly, the Department of Cinema and the Department of Instructional Technology--are related closely to each other as Dr. Finn was joint head of both departments from 1958 to 1965.

Thirty-four individuals have earned their Ph.D. degrees from the Instructional Technology Department at USC. Seven of these were prior to 1958. Five were granted during 1958 and the remainder during the last ten years, with seven finishing by the spring of 1969. Five of these individuals conducted Title VII projects during their studies in the department. These projects ranged in size from $1,000.00 to $8,000.00, and one study of $49,000.00 was conducted jointly with Dr. Allen.

The graduates have dispersed to 14 states and one foreign country. The majority are involved in higher education, the second largest group in public, elementary, and secondary school activities and the third largest in non-profit research and development efforts such as regional laboratories, etc.

The department staff of professors gradually increased during the 1958-1968 time period from two in early 1958 to six by 1964. It has remained at this level since 1964.

With the construction of a new School of Education building, in 1967, the department also gained new facilities. In addition to standard classrooms, the department can operate other specially designed areas. One of these includes a television studio and control room. It has three floor cameras, film chain and videotape recorder, with the necessary control facilities for mixing a variety of sound and image sources. In addition, many rooms are equipped for large group multi-media and multi-screen presentations.

Course offerings have increased from 15 to 23 within the ten-year period. More significantly, some general audio-visual courses have been dropped and other courses have been included that are related to mass communication theory, instructional materials centers, multi-media presentations, programmed instruction, designing instructional systems, and computer managed and assisted instruction. All of these are related activities sponsored under Title VII. It would be fair to assume that considerable experience and knowledge in the utilization of the technology were obtained in relation to the Title VII projects. Along with these courses others have been added in instructional technology theory and research at the graduate level leading to the doctorate.

Student enrollment in the department has increased significantly as Table 1 and 2 indicate. On the basis of grade sheets turned in to the University Registrar, a count was made of the number of students enrolled in each course in the department each semester of the 1958-1968 period. While these figures are totaled and do not represent a literal head count of full or part-time students in the department, the increasing volume speaks clearly of the growth of the department.

An actual parallel development is demonstrated by looking at a single course: I.T.-577, "Research in Theory in Instructional Technology" (or "Audio Visuals," as it was known earlier). This course is a requirement for the Master's Degree or any higher degree and also represents the basic course for those doing any significant amount of work in the department. The same course has been offered throughout the Title VII period and Table 1 shows the number of students who have taken the course.

TABLE 1

STUDENT ENROLLMENT

DEPARTMENT OF INSTRUCTIONAL TECHNOLOGY

| | Enrollment in One Course, "I.T.-577" | Total Enrollment in the Department* |
|---|---|---|
| 1958 (fall only) | 3 | 285 |
| 1959 | 16 | 646 |
| 1960 | 15 | 836 |
| 1961 | 16 | 743 |
| 1962 | 25 | 722 |
| 1963 | 30 | 745 |
| 1964 | 29 | 696 |
| 1965 | 65 | 765 |
| 1966 | 140 | 963 |
| 1967 | 92 | 841 |
| 1968 | 97 | 957 |
| 1969 (fall estimate) | 61 | 992 |

*Number of registrations in all courses.

TABLE 2

COURSE ENROLLMENT COMPARISON

| | Enrollment in One Course, "I.T.-477" | Total Enrollment in All Other Courses* |
|---|---|---|
| 1958 (fall only) | 256 | 29 |
| 1959 | 574 | 72 |
| 1960 | 749 | 87 |
| 1961 | 617 | 126 |
| 1962 | 528 | 194 |
| 1963 | 555 | 190 |
| 1964 | 467 | 229 |
| 1965 | 311 | 454 |
| 1966 | 382 | 581 |
| 1967 | 400 | 441 |
| 1968 | 354 | 603 |
| 1969 (fall estimate) | 282 | 710 |

*Number of registrations in all courses.

Table 2 gives a picture of another interesting trend in the department. Course number, I.T.-477, "Classroom Use of Instructional Media," has been a part of the offerings in the department through the Title VII period and until the mid-60's, was required by the State of California for teaching credential candidates. While not required by the State today, it is used in basic teacher training and as such provides training in methods of selection, evaluation, and utilization of instructional media, as they are integrated with curricula content. Always a substantial part of the department, especially in the earlier years, this course was overshadowed during the Title VII period by newer courses directly related to the types of advances Title VII was designed to promote. Table 1 represents total numbers of enrollment, whereas Table 2 contrasts I.T.-477 with all other courses. The enrollment has shifted to such courses as "Direction of Instructional Materials Centers," "Evaluation of Instructional Media," "Programmed Instruction," "Educational Uses of TV," "Designing Instructional Systems," "Computer Managed and Assisted Instruction" and other similar courses.

During the 1958-1968 period, the Instructional Technology Department at USC did make important changes and grew significantly. Title VII activities and monies were present during this time. Therefore, the Title VII efforts contributed to the growth. The presence of Dr. Finn, Dr. Allen, other Title VII directors, along with their supporting staffs, carried over into the course development and teaching assignments, although by no means providing the major support for teaching faculty positions. As an example, in the fall of 1969, 11 instructors with supporting teaching assistants are required to provide the courses available, while only 6 permanent professors were officially assigned to the department. In short, the balance of the teaching personnel are drawn from "nearby" sources and projects to complete the requirement. This has undoubtedly been the pattern throughout the Title VII period. It would be reasonable to assume that Title VII projects helped make people and resources more readily available to a developing Department of Instructional Technology.

Michigan State University

The Michigan State University (MSU) Instructional Media Center carried on a number of Title VII NDEA projects during the period from 196[illegible] through approximately 1967 which totaled approximately $1,620,055 in funding. The first of these was a contract to study the feasibility of developing an organization of groups with a primary interest in the field of educational media. This was the first of a series of contracts which led to the development of the Educational Media Council. The EMC continues to the present time with headquarters in Washington, D. C., and memberships from 18 national organizations including the following:

American Book Publishers Council
American Educational Publishers Institute
American Library Association
American Society for Training and Development
Association for Supervision and Curriculum Development, NEA
Department of Audiovisual Instruction
Educational Film Library Association
Educational Products Information Exchange Institute
Electronic Industries Association
Magazine Publishers Association
National Association of Educational Broadcasters
National Audio-Visual Association
National Educational Television
National Instructional Television Center

National Society for Programmed Instruction
National University Extension Association
Society of Motion Picture and Television Engineers
University Film Association

While not directly related to program developments at MSU, the Educational Media Council helped to increase nationwide comprehension of the inherent role of technology in the educational process, to coordinate the efforts of national organizations in this field, and to generally focus increased attention by the USOE and by educators on both the potentialities and the developmental needs of the area. MSU's leadership in organizing the EMC had a salutary, if indirect, effect on overall development of the IMC program.

Instructional Systems Project

A second major contract was undertaken by Michigan State University's IMC in 1962 entitled "A Procedural and Cost Analysis Study of Media in Instructional Systems Development." The study was extended in 1964 and completed in 1966. During the latter two years of the project, a model developed during the first phase was tested out at MSU, Syracuse University, the University of Colorado, and San Francisco State College. Each of the institutions adapted the model to their own particular conditions and needs. Generally, the model proved to be effective and is currently used in modified form in numerous institutions of higher education across the country.

The Instructional Systems Development study had a distinct local impact on the IMC's program on campus and on the professional preparation program for media specialists. During the initial phase of the Project, several instructional systems efforts were initiated locally and these experienced varying degrees of success. However, such early efforts exemplified recognized needs for improving undergraduate instruction and were among the factors leading to the establishment in 1965 of the University's Educational Development Program (EDP), which included an administrative shift of the Instructional Media Center from a peripheral service position to the Office of the Provost of the University as a part of a newly-created Instructional Development Service. During the 1965-70 period, some 200 projects were conducted under EDP of which two-thirds involved educational technology programs designed in part and produced by the Instructional Media Center. Of these, some 15 to 20 EDP projects resulted in instructional systems of a fairly sophisticated nature in academic subject areas ranging from the sciences to the fine arts.

Single Concept Film Project

A project, under the direction of Dr. Elwood Miller, directed at studying the Single Concept Film Clip was begun in 1964 under Title VII and continued for a three-year period. This project has provided insights in the design and application of instructional materials including short films. While the impact of the project on the overall IMC program and on the professional preparation program were less direct than that of the Instructional Systems Study, nonetheless it provided valuable inputs about the use of new systems of materials development and also provided the opportunity for six research studies for graduate students.

The EMC, Instructional Systems, and Single Concept Film projects carried on under Title VII all served to provide opportunities for national leadership and visibility for the IMC professional preparation program at MSU. This probably helped provide a steady increase in the number of high quality doctoral candidates from across the nation. The first MSU doctorate in the professional program in Instructional Technology was presented in 1960. The next two doctorates were completed in 1963 and five more in 1965. From 1966 through 1969, there were 15 degrees in Instructional Development and Technology earned at MSU.

An estimate of the present size of the program is indicated by the following quote from the 1968-69 IMC Annual Report:

> "During 1968-69, the IMC provided instructional staff for 40 courses enrolling 1,211 students, including four federally-funded Institutes enrolling 90 students; this compares with 36 courses and 1,096 students, including Institutes, offered in 1967-68. Presently there are 133 majors enrolled in Instructional Development and Technology as compared with 111 a year ago, including 70 master's candidates, 3 specialists, 57 doctoral candidates, and 3 post-doctoral students."

Teaching Research Division, Oregon State System of Higher Education

The Teaching Research Center at the Oregon College of Education was initiated in May 1959. It has developed into Teaching Research: A Division of the Oregon State System of Higher Education. The substantial growth of this unit parallels the period during which Title VII existed.

The personnel of the group now numbers approximately 100 and its growth has been continuous as shown in Figure 1.[2]

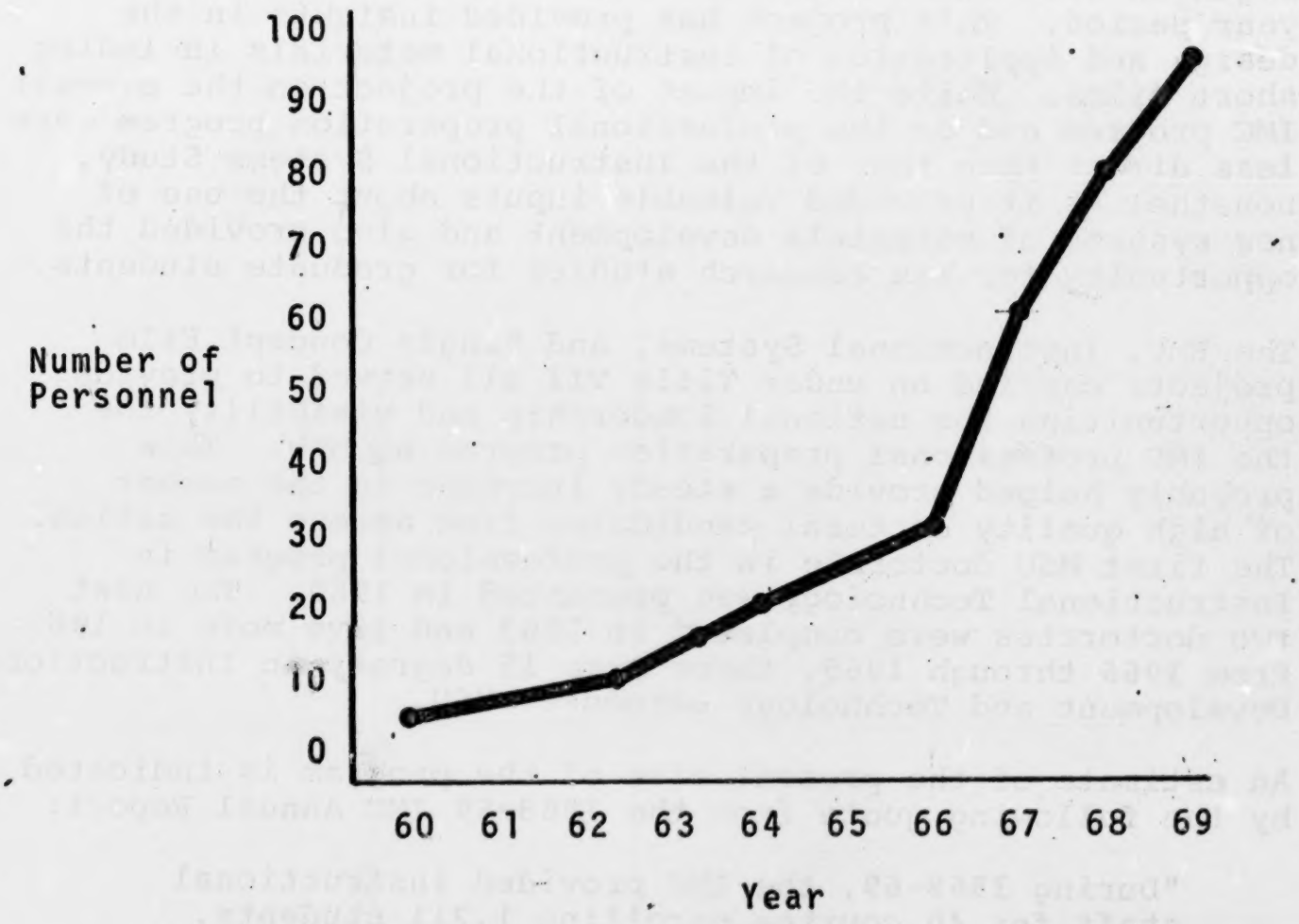



Fig. 1. Growth of the Teaching Research Division

Using the research program as a base, the division is currently organized into three units: two operational research units, and one general unit responsible for division-wide support activities. The two research units include special subgroups dealing with simulation; administration, intercultural articulation, research, evaluation, and development training; affective-cognitive techniques; special education; evaluation research; individualized instruction; computer-assisted instruction; and learning ecologies.

---

[2]Reproduced from *Teaching Research: Its History and Capability*. Teaching Research, A Division of the Oregon State System of Higher Education, Monmouth, Oregon, p. 4.

Teaching Research received its initial impetus from a grant to the Oregon College of Education in May, 1959. This grant was made under the provisions of Title VII of the National Defense Education Act of 1957. In 1960, a Training Research Center was established on the campus of Oregon College of Education.

The impact of Title VII and its influence on this particular activity in the field of teaching research is reflected in the following remarks from a letter by James H. Beaird.

> *"As stated in the attached document, the history of this division can be traced directly to a Title VII grant made to Dr. Jack Edling in May of 1959. The first five grants made it possible to operate the division and further permitted the attraction of staff members who have been instrumental in the development of this organization.*
>
> *In the first three or four years of the division's existence almost all proposals prepared within the division were submitted to Title VII....personnel within this division were strongly committed to the use of media and to its potential for the improvement of instruction.*
>
> *Arguments could be developed indicating that more than 75 percent of our current operation can be traced directly to one or more Title VII funded activities within the division. At the same time it could be argued that had Title VII funding not been available, personnel within the divison would probably have located some other funding source and concentrated its efforts there. Be that as it may, Title VII was in existence and Teaching Research, as an organization, has grown and evolved largely as a result of the impetus and continued support given by that program. As one studies the division's list of projects and activities, one will note that no other source of funding has had the impact on the division's activities as that of Title VII.*
>
> *In terms of specifics, the activities of the Simulation Systems and Individualized Instruction Programs at Teaching Research are almost entirely a result of Title VII activities. Additionally, Dr. Del Schalock, Director of the Learning Ecologies Program, Mr. Bud Paulson, Director of the Evaluation Research Program, Mr. Dale Hamreus, Division Associate*

*Director, and myself all joined the staff as a direct result of the presence of Title VII projects. It is fair therefore to say that all of the areas which are under the influence of these individuals have in some way resulted from Title VII influence. Additionally, our program on research, evaluation, and developmental training has been heavily influenced by knowledge and competency developed by many of our staff in association with Title VII projects."*[3]

The growth in total contract volume over the ten-year period of the group is reflected in Figure 2. The titles of many of the projects are provided below to give an idea of the scope and diversity of the work undertaken by this group.

Increasing prediction of teacher's classroom behavior through use of motion picture tests. ($62,000)

Simulated tape interviews in counselor training. ($4,000)

A comparative study of current educational programs for pre-school children. ($64,000)

Educational media (TV) for the pre-school child. ($11,000)

Media, creativity, and change. ($4,000)

Interinstitutional teaching by TV in the Oregon State System of Higher Education. ($29,000)

Using simulation techniques to change attitudes of education majors toward professional course objectives. ($4,000)

A study of the effectiveness of audiovisual teaching materials when prepared according to the principles of motivational research. ($60,000)

Experiments with educational media designed to modify attitudes. ($36,000)

Group vs. individual pacing in programmed instruction. ($3,000)

---

[3]Letter from Dr. James Beaird, December 1, 1969.

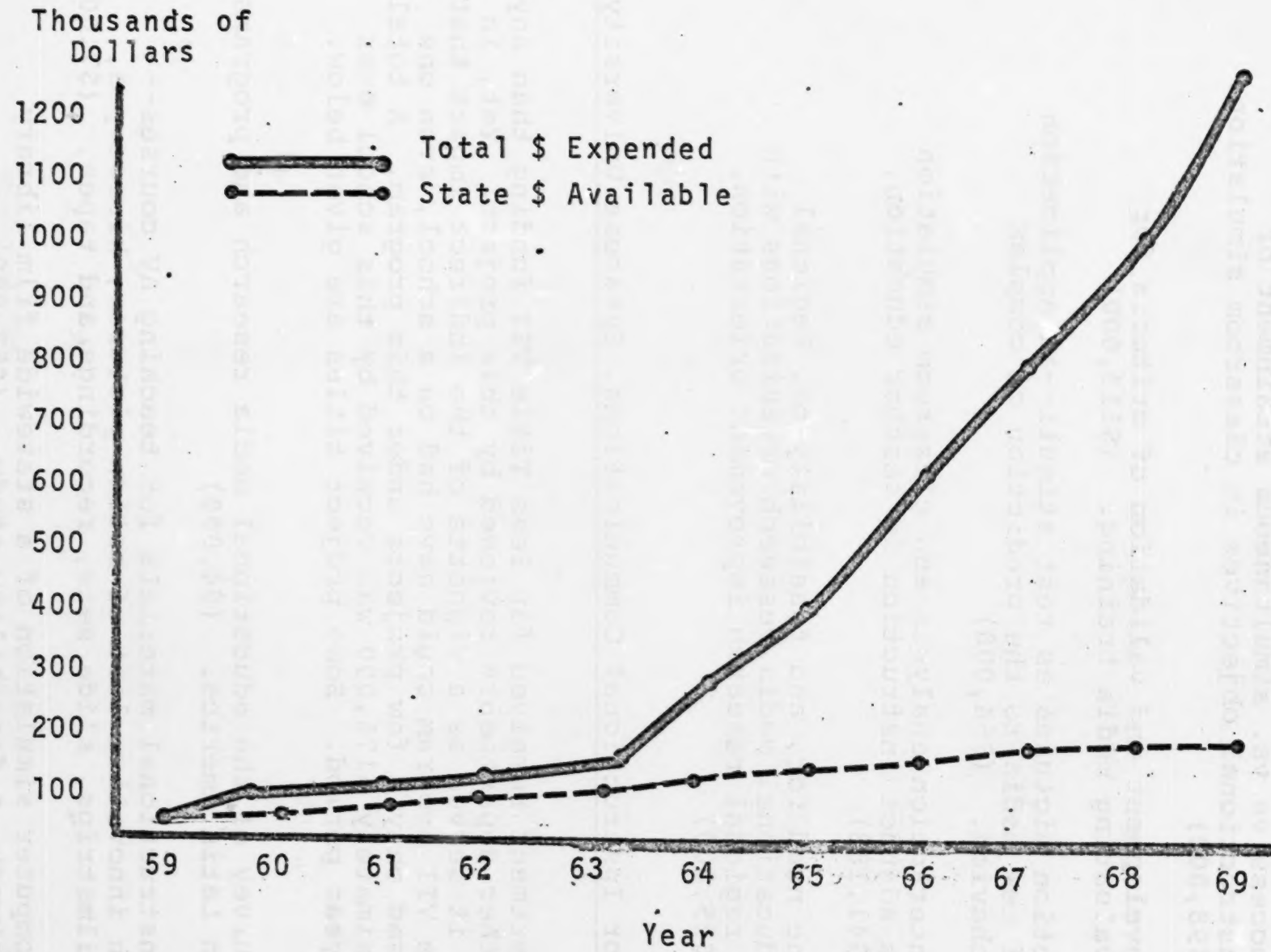



Fig. 2. Growth in Contract Funding at Teaching Research Division[4]

[4] *Ibid.*, p. 8.

Self-evaluation in in-service teacher education. ($30,000)

Classroom simulation--further studies on dimensions of realism. ($23,000)

Successive vs. simultaneous attainment of instructional objectives in classroom simulation. ($98,000)

Development and validation of criteria for evaluating media training. ($113,000)

Motion pictures as test stimuli--an application of new media to the prediction of complex behavior. ($54,000)

Interaction analysis and classroom simulation as adjunct instruction in teacher education. ($41,183)

The need for, and feasibility of, Regional Educational media research organizations with a regional research improvement orientation. ($25,000)

## Center for Instructional Communications, Syracuse University

This department received far less Title VII funding than any of the other departments reviewed by this project. Yet, in a sense, it serves as a vignette of the indirect impact that the Title VII program could have had on a school, even one that housed only a few projects under this program. A total of approximately $176,000 was received by this school over the ten-year period. Some project titles are given below.

- Survey of the educational media research and programs in Latin America. ($4,000)
- Instructional materials for teaching AV courses--an innovative list of motion pictures, kinescopes, filmstrips, slide sets, recordings, and tapes. ($7,000)
- Computer simulation of a statewide film library network--a feasibility study. ($57,000)

- The three Rs plus a new approach to education's problems. ($27,000)
- Prototype system for a computer-based statewide film library network--a model operation. ($81,000)

However, it would appear that the existence of a federally--sponsored program in the area of educational media provided a new degree of respectability to the few Syracuse faculty members initially working in this area in 1958. Monies had been provided for research and dissemination in the area of educational media. This status-enhancing device continued with the advent of other legislation such as ESEA and the passage of the Media Institutes provisions under Title IX.

In addition, key members of the other departments were asked to be field readers for the Title VII program, again indirectly enhancing the Department's reputation and status.

Even with limited Title VII funds, opportunities were provided for graduate students to complete portions of or, in certain instances, their entire doctoral programs.

When a member of the project staff recently visited the Center, he was told by the current department staff that Title VII has aided greatly in giving the field the beginnings of a truly professional occupation area.

Pennsylvania State University

This university, as contrasted to those already discussed, had Title VII projects housed in a number of departments and not centralized in a "media-oriented" section. These included the Departments of Educational Psychology, Anthropology, Psychology, Mathematics, Speech, and the Divisions of Instructional Services and Instructional Research and Development.

At Pennsylvania State University there were 21 Title VII projects, totaling over $1 million in grants. Penn State professors and administrators reported that one Title VII project became a prototype for the adoption and use of low-cost helical scan videotape recorders on 16 of the university's branch campuses. Now nearly 2,000 videotapes are being exchanged statewide among campuses. This particular project was carried out at a cost to the federal government of less

than $10,000 and is now solely supported with university funds. Computer-assisted instruction was also initiated at the School of Education at Penn State via Title VII funding. Since that time, there have been at least 12 other projects at Penn State involving the use of the computer for educational purposes. Still another project was concerned with improving teaching materials for "new math." These materials were published, and the five-year sales totaled more than 250,000 copies. The material has already appeared in Spanish and will be soon translated into Portuguese. A number of doctoral candidates worked on these and other projects and were supported by Title VII research assistantships. Many of the students have made instructional technology their principal research field.

## Indiana University

During the period 1958-1968, over 25 projects were supported at Indiana University under Title VII, with funding totaling almost $2 million. One of the largest grants helped to establish what today has become the National Instructional Television Center on the Indiana campus. This activity is discussed separately in the section that follows.

The current Division of Instructional Systems Technology, where the majority of the Title VII projects were conducted, grew from an Audio-Visual Center in the School of Education in 1940 to a Department of Audio-Visual Education in 1950 to a Division of Educational Media in 1959.

Of the 118 doctoral degrees awarded between the years 1959-1969, eight were completed with funding from Title VII's small grant program and the faculty reported that another 48, in terms of subject, time, and support were developed either directly or indirectly out of Title VII projects.

Some of the Title VII projects conducted in this group included:

- The effect of observation of pictorial stimuli on transfer tasks.
- Influence of three teaching machine factors--feedback to programmer, participation by the learner, and feedback to learner on the production and utilization of science films.

- A socio- and psycho-linguistic theory of pictorial communication.
- Studies of patterns of influence in the school situation as they affect the use of AV materials.
- A conference on implementing a system for national bibliographic control of the newer educational media.
- Formulation of quantitative guidelines for the audio-visual communications field.
- Organizational patterns, practices, and facilities used in the preparation of visual materials for instructional purposes.
- Improving the quality of teacher performance by use of the videotape recorder.

This latter study was one of the pioneering efforts in this area. The organizational patterns study was published under the title of "Improving the Learning Environment" by the U.S. Office of Education and 15,000 copies were made available free to school systems. Efforts led to the development of areas of specialization within the doctoral program. Interestingly, this department received over ten small grants ($2-4 thousand), grants that enabled individuals to explore new areas and begin to evolve a study which then culminated in their doctoral dissertation.

As was indicated in the chapter on the legislative history of Title VII, this legislation provided the foundation and experience upon which other later acts, etc., would build. Consequently, it is not surprising to see that Title VII made a significant contribution to this institution in providing an opportunity to build a knowledge base necessary for reorganizing and restructuring the professional education program. Initial support from the NDEA, Elementary and Secondary Act, the Higher Education Act, and the Education Professions Development Act, helped to provide the necessary academic and professional staff, support staff, materials and equipment which enabled Indiana University's integrated Audio-Visual Center's Instructional Systems Technology Program to make substantial progress during the period 1958-1970.[1] The Division of Instructional Systems Technology now serves 181 majors as contrasted to 59 in 1958 and has increased its professional-level faculty in this area from 8 out of 40 in 1958-59 to 23 out of 51 in 1969-70.

---

[1]Personal communication, L. C. Larson, June 10, 1970.

## The National Instructional Television Center, Bloomington, Indiana

One way to view the impact of Title VII is to see whether an activity continues after the federal funds have been exhausted. A good example of an activity that could continue is The National Instructional Television Center (NITC).

Title VII was largely responsible for the continuing existence and circulation of high-quality instructional television programs. Among the facilities and projects it supported was The National Instructional Television Center. A grant of $1,105,000 in 1965 allowed this service organization to move from National Educational Television in New York City, where its growth and tenure were both limited, to the University of Indiana, where the potential for expansion was greater and the working conditions more favorable. The University of Indiana Foundation invested a substantial amount of money in support of the NITC, and this, together with the Title VII grant, gave the Center a chance to become eventually self-supporting as it carried out its work. Currently, the loans are being repaid and operating expenses derived from yearly activities. It now makes a number of high-quality instructional programs available by rent to schools and colleges throughout the country and produces some instructional programs of its own where suitable material to satisfy current needs does not exist.

The Center has undergone three basic phases in its evolution: (1) maintaining a library of locally produced materials; (2) upgrading and sharing local resources; and (3) designing and developing programs.

The concept in educational television broadcasting is to deal with the full range of population needs, from daytime programs primarily for children in school to evening programs basically for adults. NITC has a mission to deal with the daytime aspect.

During the period 1965-1970, the school population reached by NITC telecourses approximated 17 million youngsters in grades K-12 and an additional 150,000 students via higher education or in-service teacher training programs.

There were many difficulties initially in translating and transferring locally-produced programs between school districts. In 1959, with the advent of videotapes, it became possible to transfer taped programs so that local school districts and stations could see what had been produced

elsewhere. It was obvious that the common denominator of the majority of these productions was mediocrity. Only about 15 percent were of good professional quality, whereas 20 to 30 percent were near misses that could be restored and revised. Criteria for selection and dissemination by the Center and its review groups included: production-quality, communication of stated goals, technical quality, and the efficiency with which the material had been introduced into the curriculum of the largest number of schools.

Besides upgrading existing materials, the Center is currently designing programs in four basic areas: elementary school art, music, physical education, and early childhood education. These curriculum areas are ones where many schools do not have sufficient roving content specialists and would welcome additional resources.

# SELECTED JOURNAL REVIEW AND INCIDENCE OF CITATION ANALYSIS

The amount of scholarship in educational technology increased markedly during the life of Title VII. Results of work on Title VII projects were disseminated in several ways. The project director and his staff might have published a report or article in a research journal (direct dissemination), or the article might have been cited by another author to acknowledge the Title VII contribution or to list the Title VII article as an additional source of information (indirect dissemination). Both of these modes of dissemination were examined, by means of a journal review and an incidence of citation analysis.

## JOURNAL REVIEW

For the journal review, a number of educational periodical publications were selected that either were related to the educational media field or were concerned with reporting educational research.

Educational Media Field:

*AV Communication Review* (published by the Department of Audiovisual Instruction, National Education Association);

*Audiovisual Instruction* (published by the Department of Audiovisual Instruction, National Education Association);

*Educational Screen and Audiovisual Guide* (published through private ownership);

*Educational Technology* (published through private ownership);

*Journal of Broadcasting* (published by the Association for Professional Broadcasting Education).

General Educational Research Field:

*American Educational Research Journal* (published by the American Educational Research Association);

*Journal of Educational Psychology* (published by the American Psychological Association);

*Journal of Educational Research* (published through private ownership).

The procedure was to examine either complete volumes of the journals (where Title VII appeared to have a significant impact) or a sample of specific volumes and issues (where the impact was found to be low) for the period 1960 through 1969. Two types of information were obtained: (1) the frequency of articles and research reports arising directly out of Title VII projects, and (2) evidence, if indicated, of the influence of Title VII on the editorial policies of the journals.

## Impact on Journal Content

The occurrence of articles and research reports appearing in the journal and clearly attributable to the influence of Title VII is listed below for each of the journals analyzed. The criterion for selection was specific identification by the authors of Title VII support in their articles. In instances where this was not provided the investigator used his knowledge of the research and researcher to make a judgment regarding the article's relationship to Title VII.

It might be expected that Title VII would have the greatest impact on research published in the *AV Communication Review* because it is devoted exclusively to the educational media field and is concerned with the publication of articles related to research and theory. *This proved to be the case.* An analysis was made of all articles published for the nine and one-half year period from 1960 through the Summer 1969 issue. Table 1 shows the number of such articles printed and the percentage these comprise of the total number of articles in the journal.

The impact of Title VII was felt particularly in the years 1963 through 1966, when 39 percent of the major articles published in the journal were reports associated with Title VII-funded projects. Beginning in 1967, however, there was a considerable decline in the number of such articles published, and in 1969 the percentage fell to the lowest figure (6 percent) for any year studied.

Included in the totals on the following page were two complete special supplements prepared under Title VII grants by the Technological Development Project of the University

ARTICLES IN AV COMMUNICATION REVIEW

TABLE 1

| Year | Total Articles Published | Title VII Reports | Percentage Title VII of Total Published |
|---|---|---|---|
| 1960 | 43 | 4 | 9% |
| 1961 | 33 | 3 | 9 |
| 1962 | 44 | 7 | 16 |
| 1963 | 24 | 9 | 38 |
| 1964 | 24 | 10 | 42 |
| 1965 | 28 | 10 | 36 |
| 1966 | 24 | 10 | 41 |
| 1967 | 24 | 4 | 17 |
| 1968 | 24 | 7 | 29 |
| 1969 (2 issues) | 16 | 1 | 6 |
| | 284 | 65 | 23% |

of Southern California and the Department of Audiovisual Instruction of the NEA. These reports appeared as the January-February 1963 and the March-April issues and were entitled "The Changing Role of the Audiovisual Process in Education: A Definition and a Glossary of Related Terms" edited by Donald P. Ely, and "The Role of the Computer in Future Instructional Systems" by Donald D. Bushnell.

The Title VII program exerted one further influence on *AV Communication Review* through a contract with the Department of Audiovisual Instruction for services to disseminate the results of Title VII research by means of research abstracts and critical papers related to this research. In all, 293 research abstracts were prepared and published in 15 supplements to the journal from the July-August 1961 through the Fall 1967 issues, when the ERIC Clearinghouse took over the job of abstracting.

In three of the chief periodicals for practitioners of educational technology--Audiovisual Instruction, Educational Screen, and Educational Technology--almost no articles between 1960 and 1969 acknowledged Title VII as their source. This is not entirely surprising because Title VII research was not geared to producing articles at the practical level of these journals and seldom did the authors of these articles acknowledge their sources of funding. On the other hand, the list of authors who wrote for these journals during the

60's reads like a glossary of Title VII research directors. It is reasonable to suppose, therefore, that although Title VII did not contribute directly to these journals, it must have had a considerable indirect influence.

A sampling of three educational research journals not focused on instructional media--the American Educational Research Journal, the Journal of Educational Research, and the Journal of Educational Psychology--showed that 3 to 16 percent of the articles in the different journals acknowledged Office of Education support, but only 1 to 5 percent acknowledged support from Title VII. The percentages bear some relationship to monies expended for Title VII as compared to all Office of Education support in the general area of media and learning research.

## The Intangible Influences of Title VII

This analysis has focused mainly on the measurable and attributable influences of the Title VII research program as reflected in the number of papers published in the various professional journals. But such an analysis fails to take into consideration the influences of the program on researchers and other media specialists aside from the stimulation of research reporting. This author got the impression that many contributors to *Audiovisual Instruction, Educational Screen and Audiovisual Guide,* and to *Educational Technology,* in particular, had participated in Title VII programs and that the articles they were writing, although not formally attributed to the program, owed a debt to it.

Certainly the fact that such a program as Title VII existed had an intangible effect on the literature in the field, and the impression is that research with educational media filtered down to the grass roots and made practitioners in the field conscious of research in this area. As a consequence, an overall awareness of the importance of this research seems to be inherent in much of the writing.

## Conclusions

On the basis of the above analysis, the following conclusions may be drawn regarding the impact of the Title VII research program in the professional education periodicals.

1. With the exception of the contributions made to the content of *AV Communication Review,* the Title VII program had negligible direct effect upon publications in educational research and media. Any of the significant influences that may have been felt were intangible ones that resisted statistical measurement.

2. The influence of Title VII on *AV Communication Review* was primarily one of supporting a research report abstracting service and of furnishing a pool of research reports and articles from which the editor might draw the contents of the journal.

3. The expectation that the Title VII program would have any more of an influence than it had upon periodical publications would have been unrealistic in the light of the nature of these publications. They serve as traditional and structured vehicles for the dissemination of research information, and it is to be expected that contributors to them would conform to the general pattern. This means that the most that could be expected would be a stockpile of conventional research papers, and this is exactly what happened. If the dissemination part of the Title VII program had the development of new ways of making research known as a high priority objective, the program probably would have made a far greater impact on the journals themselves and certainly on education in general. What seemed to have happened, however, was that attention was largely focused on the financial support of local conferences, seminars, and surveys, the results of which were not adequately disseminated.

This is not to say that the only or best way to distribute research information is through the conventional professional journals; however, it is possible that the Title VII program might have been able to reshape some of these journals into more viable and relevant communication channels had a major effort been made to do so.

## INCIDENCE OF CITATION ANALYSIS

Another way to look at the visibility of research is to examine the publications cited by authors in their research articles. In *Unobtrusive Measures*, Webb *et al.* (1966) proposed the use of less conventional measures to cross-validate more conventional data through multiple operationalism. One of the measures proposed by the Webb *et al.* study of archival records forms the basis for this study. To accomplish our objective of ascertaining the effects

of Title VII, we studied one of the basic archival record data sources of the field--journal articles. This examination follows suggestions made by Derek de Solla Price in his article, "Networks of Scientific Papers" (1965), in which he suggested that it should be possible to pick out the "classic" journal articles in a field by studying the incidence of citation.

By studying the incidence of citations across a field, one can identify those articles which are cited far more frequently than others. These articles can be said to function as building blocks or turning points upon which new advances in the field are based.

The current study uses citation analysis in an attempt to assess the impact of a particular event--Title VII--and to see whether research supported through this act had any effect on the field of educational media and technology.

Methodology

The study was broken down into four phases:

preliminary study of the field;

collection of the data set;

identification of frequently cited sources;

analysis of these cited sources.

Obviously, some publications have a wider readership than others and, perhaps more important, a more diverse readership in terms of the potential for putting into practice ideas derived from Title VII. These widely read publications might be referred to as "wide-band" publications. An example of this type of publication might be the *NEA Journal*, or even, the composite of journals discussed below. An example of "medium-band" publications might be the *Review of Educational Research*, published five times a year by the American Educational Research Association. A "narrow-band" publication is one which is of particular interest to a special group of media researchers and any Title VII citations for this group are usually selected after a high degree of screening by the authors. An example of such a document would be a media section in the *Annual Review of Psychology*.

"Wide-Band" Analysis

A rapid survey was made of the field with two objectives in mind: to set a time frame from which to collect data, and to select journals representative of the field from which to collect the citations that would make up the data set. The time frame selected was the 18-month period January 1968 through June 1969. This period was selected because it was a convenient size for sampling, and because it seemed to be the time frame that would be most sensitive to work supported under Title VII.

The eight journals selected for sampling as those most likely to delineate the field were:

*AERA Journal*

*AV Communication Review*

*Educational Technology*

*Educational Television International*

*Journal of Educational Psychology*

*NSPI Journal*

*Programmed Learning and Educational Technology*

*Review of Educational Research (No. 4, 1968)*

Collection of the Data Set

Collection of the data set consisted of coding the bibliographic citations appearing in the journal articles, and preparing and maintaining dictionaries which listed and coded all cited journals, books, dissertations, technical reports, films and other sources. At the completion of this phase of the project, 4293 citations composed of 1997 journal citations, 1190 book citations and 1106 citations of other sources had been collected and input into computer data sets. The dictionaries contained some 300 journals, 700 books and 900 other sources.

Identification of Frequently Cited Sources

The citations in the data set were divided into three groups--journals, books and other sources, and were analyzed separately. The citations were sorted to allow visual identification of frequently cited sources. After the citation frequencies were inspected, all journal articles

cited three or more times were extracted for further analysis. This produced an easily manageable sample of 35 journal articles.

The final stage of the study consisted of tracing back frequently cited sources to obtain titles, authors, sources of support (to test for Title VII effects), number of citations and other data.

The remainder of this report is based on the analysis of the 1997 journal article citations.

## Frequently Cited Journal Articles

Using the criteria of three or more citations, 35 journal articles were selected for further analysis. Of these, 28 were cited three times, 5 were cited four times, 1 was cited five times and 2 were cited six times. All of the cited articles were relatively recent--the mean publication year was 1962 and the mode was 1967. The mean number of authors per articles was 1.51, fairly close to the figures reported in other areas of behavioral sciences by Lin and Nelson (1969), Mick (1969), and Parker, Paisley and Garrett (1967).

The articles appeared in 20 different journals. Four of these journals were represented by two or more articles: 11 of the articles appeared in the *Journal of Educational Psychology*, four in *AV Communication Review*, and two each appeared in the *American Educational Research Journal* and *Psychological Review*.

Several authors in the field were represented by more than one article: David P. Ausubel wrote or contributed to three of the articles, and Donald Fitzgerald, Robert M. Gagné, Albert Roe and Richard E. Snow each wrote or contributed to two articles.

The following 35 articles are called "frequently cited" rather than "classic" because it is felt that the sample of citations from which the list was drawn is far too small to justify a "classic" label. They do, however, represent the strongest journal article influences on the field, as defined by the journal sample and the time frame. The articles are ranked below by the frequency of citation and alphabetically.

## Analysis of Frequently Cited Journal Articles

The 35 frequently cited articles included 23 research reports and 12 nonresearch articles (mainly speeches)

theoretical explorations and literature reviews. Some of these nonresearch articles were, however, based on earlier research work.

Of the 23 research reports, 13 acknowledged support through grants, fellowships and other sources. The sources of support (in some articles more than one source was acknowledged) were:

| | |
|---|---|
| Office of Education | 3 |
| Other Federal Agencies | 7 |
| Private Sources | 3 |
| University Grants | 3 |

In addition, one nonresearch article also acknowledged Office of Education support.

Two of the 35 articles were based on doctoral dissertations.

6 Citations


Snow, Richard E., Tiffin, Joseph, and Seibert, Warren F. Individual Differences and Instructional Film Effects. *Journal of Educational Psychology*, 1965, 56 (6), 315.

Gagné, Robert M. The Acquisition of Knowledge. *Psychological Review*, 1962, 69 (4), 355.


5 Citations


Rothkopf, Ernst Z. Learning from Written Instructive Materials: An Exploration of the Control of Inspection Behavior of Test-Like Events. *American Educational Research Journal*, 1966, 3 (4), 241.

Gagné, Robert M. and Brown, Larry T. Some Factors in the Programming of Conceptual Learning. *Journal of Experimental Psychology*, 1961, 52 (4), 313.

Travers, Robert M. W. The Transmission of Information to Human Receivers. *AV Communication Review*, 1964, 12 (4), 373.

Kaiser, Henry F. The Varimax Criterion for Analytic Rotation in Factor Analysis. *Psychometrika*, 1958, 23 (3), 187.

3 Citations


Roe, Arnold. A Comparison of Branching Methods for Programmed Learning. *Journal of Educational Research*, 1962, 55 (9), 407.

Canfield, Albert A. A Rationale for Performance Objectives. *Audiovisual Instruction*, 1968, 13 (2), 127.

Mandler, George and Sarason, Seymour B. A Study of Anxiety and Learning. *Journal of Abnormal and Social Psychology*, 1952, 47 (2), 127.

Hulett, J. Edward, Jr. A Symbolic Interactionist Model of Human Communication Part I. *AV Communication Review*, 1966, 14 (1), 5.

Hershberger, Wayne A. and Terry, Donald F. Delay of Self-Testing in Three Types of Programmed Text. *Journal of Educational Psychology*, 1965, 56 (1), 22.

Brackbill, Yvonne; Bravos, Anthony and Starr, Raymond A. Delay-Improved Retention of a Difficult Task. *Journal of Comparative and Physiological Psychology*, 1962, 55 (6), 947.

Mager, Robert F. Deriving Objectives for High School Curriculum. *NSPI Journal*, 1968, 7 (3), 7.

Jenkins, Joseph; Neale, Daniel C. and Deno, Stanley L. Differential Memory for Pictures and Word Stimuli. *Journal of Educational Psychology*, 1967, 58 (5), 303.

Craig, Robert C. Directed Versus Independent Discovery Established Relations. *Journal of Educational Psychology*, 1956, 47 (4), 223.

Robinson, W. S. Ecological Correlations and the Behavior of Individuals. *American Sociological Review*, 1950, 15 (3), 351.

Ausubel, David P. and Fitzgerald, Donald. Organizer, General Background and Antecedent Learning Variables in Sequential Learning. *Journal of Educational Psychology*, 1962, 53 (6), 243.

Dick, Walter. Retention as a Function of Paired and Individual Use of Programmed Instruction. *Journal of Programmed Instruction*, 1963, 2 (3), 17.

Roe, K. Vlachoul; Case, H. W. and Roe, A. Scrambled Versus Ordered Sequence in Autoinstructional Programs. *Journal of Educational Psychology*, 1962, 53 (2), 101.

Jensen, Arthur and Rohwer, William D., Jr. Syntactical Mediation of Serial and Paired Associate Learning as a Function of Age. *Child Development*, 1965, 36 (3), 601.

Skinner, B. F. Teaching Machines. *Science*, 1958, 128 (3330), 969.

Otto, Wayne. The Acquisition and Retention of Paired Associates by Good, Average and Poor Readers. *Journal of Educational Psychology*, 1961, 52 (5), 241.

Scandura, Joseph M. The Basic Unit in Meaningful Learning--Association or Principle (Set-Function Language). *School Review*, 1967, 75 (3), 329.

Payne, David A.; Krathwohl, David R. and Gordon, John. The Effect of Sequence on Programmed Instruction. *American Educational Research Journal*, 1967, 4 (2), 125.

Amidon, Edmund and Flanders, Ned A. The Effects of Direct and Indirect Teacher Influence on Dependent Prone Students. *Journal of Educational Psychology*, 1961, 52 (6), 286.

Gentile, Ronald J. The First Generation of Computer Assisted Instruction Systems. *AV Communication Review*, 1967, 15 (1), 23.

Harlow, Harry T. The Formation of Learning Sets. *Psychological Review*, 1949, 56 (1), 51.

Ausubel, David P. and Fitzgerald, Donald. The Role of Discriminability in Meaningful Verbal Learning and Retention. *Journal of Educational Psychology*, 1962, 52 (5), 266.

Knight, M.A.G. The Royal Air Force Study. *Occupational Psychology*, 1963, 37 (1), 68.

Burns, Richard W. The Theory of Expressing Objectives. *Educational Technology*, 1967, 7 (20), 1.

Cronbach, Lee J. The Two Disciplines of Scientific Psychology. *American Psychologist*, 1957, 12 (11), 671.

Ausubel, David P. The Use of Advance Organizers in the Learning and Retention of Meaningful Verbal Material. *Journal of Educational Psychology*, 1960, 51 (5), 267.

Pryluck, Calvin and Snow, Richard E. Toward a Psycholinguistics of Cinema. *AV Communication Review*, 1967, 15 (1), 54.

Bishop, Carol H. Transfer Effects of Word and Letter Training in Reading. *Journal of Verbal Learning and Verbal Behavior*, 1964, 3 (3), 215.

## Conclusions

Of the four articles acknowledging Office of Education support, only one could be linked with Title VII-sponsored research: "Individual Differences and Instructional Film Effects" by Richard E. Snow, Joseph Tiffin, and Warren F. Seibert. Identification of Title VII sponsorship was accomplished through searching the files of the ERIC Clearinghouse on Educational Media and Technology. It was one of the two most frequently cited articles in the sample, and was cited a total of six times. The authors, individually, had a total of three Title VII projects during the period 1961-63 which had topics closely related to the journal citation.

In the four-citation category, the work of Robert M.W. Travers can be linked directly to a Title VII effort that spanned 1962-65. In the three-citation category, the work of Roe, Case, and Roe (1961-63); Pryluck and Snow (1965); Payne, Krathwohl, and Gordon (1965); and also that of Amidon and Flanders (1959-61) can be seen to have direct linkages to Title VII efforts.

"Medium-Band" Analysis

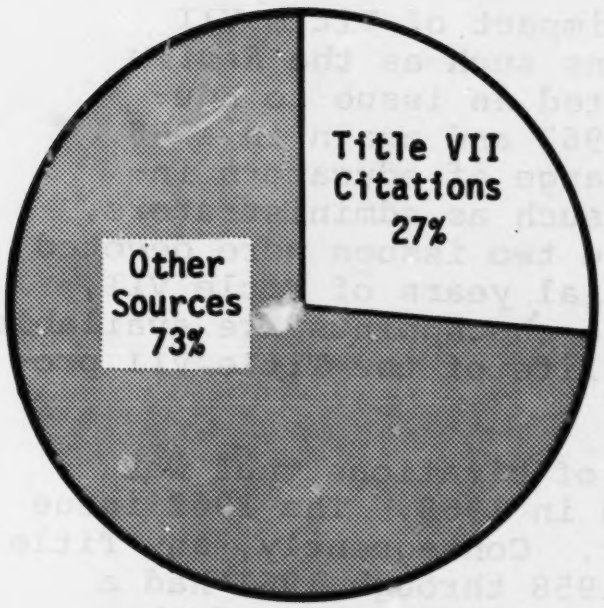
An attempt was made to assess the impact of Title VII output on "Medium-band" publications such as the *Review of Educational Research* which devoted an issue to Educational Media and Technology in 1962 and again in 1968. The *Review* is received by a wide range of educators interested in educational research, such as administrators, curriculum specialists, etc. Since two issues were devoted to this topic, one during the initial years of Title VII, and one during the later years, two checkpoints are available along a continuum paralleling the life of the Title VII program.

Figure 1 indicates the percentage of citations that was recorded for Title VII in 1962 and in 1968. The 1962 issue was released in April of that year. Consequently, any Title VII documents produced from late 1958 through 1961 had a chance of being cited. The fact that 27 percent of the total citations can be attributed to Title VII reflects an "impact" of considerable strength when one considers the newness of the program.

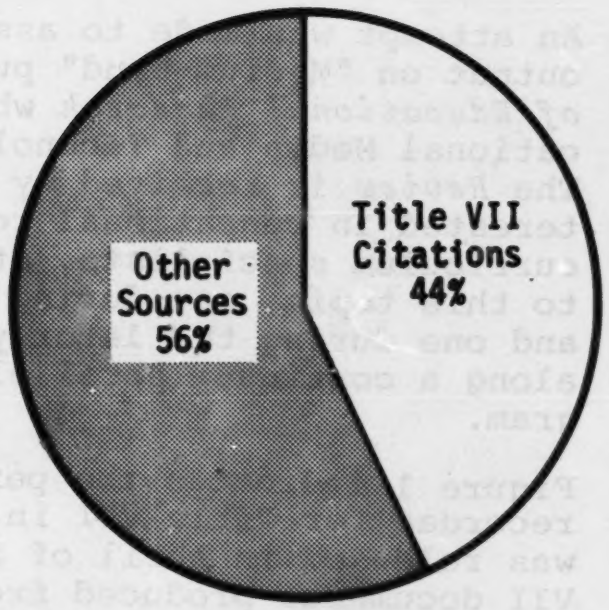
In some instances, authors of chapters cited abstracts of Title VII projects reported in the *AV Communication Review*. These were included as citations since the essence of the Title VII work (as reported in the abstract) was recognized as being of value by the chapter author, even though he had not acquired a copy of the project's final report.

Title VII citations increased to 44 percent in April, 1968. This increase certainly reflects the fruits of nine years of research and dissemination activities in the field of media. A page from one section with Title VII citations circled is provided as Figure 2 to give some idea of the density of Title VII citations.

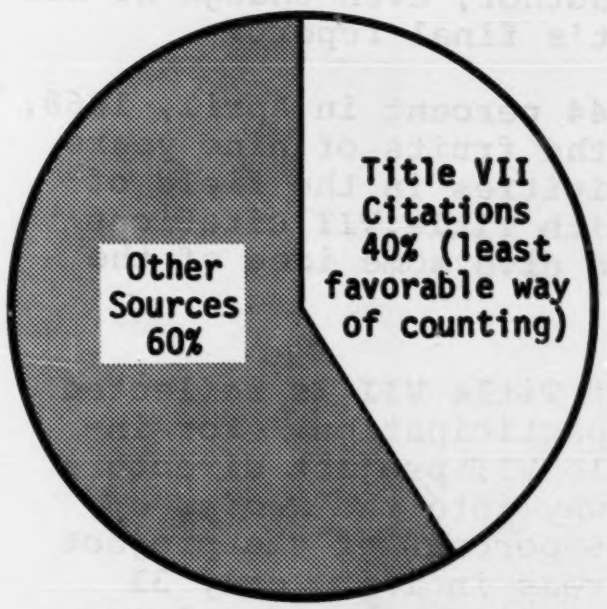
Another dimension of the impact of Title VII is reflected in the level of project director participation. For instance, did all the potential Title VII project directors generate a report that found its way into the *Review of Educational Research*? In 1962, 46 percent of the project director population appeared, whereas in 1968, only 31 percent appeared. The latter figure represented a larger number of project directors (138 in 1968 as compared with 67 in 1962), but of course, the total project director population had also grown by 1968.



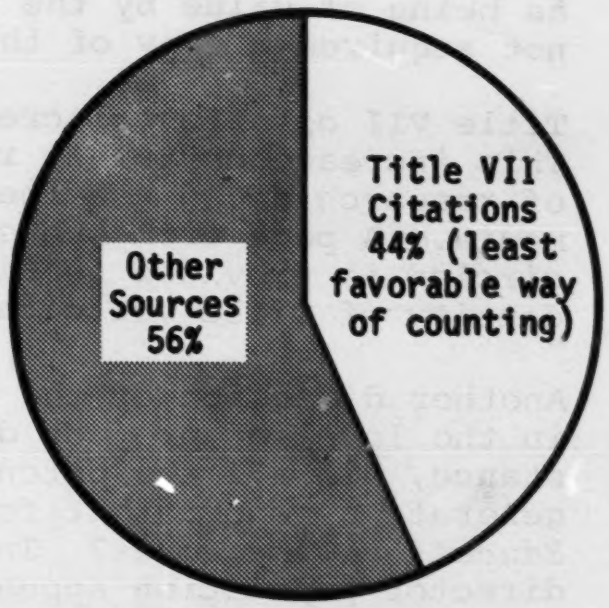

Review of Educational Research,
April, 1962




Review of Educational Research,
April, 1968




Research in Instructional Television
and Film, by Reid and MacLennan,
1965




Chapter on "Mass Communication and
Educational Media," by Lumsdaine
and May, in Annual Review of
Psychology, 1965

Fig. 1.

Proportion of Title VII Research Reports Among Papers And Books
Worth reviewing in Reviews of Research on Instructional Media
And Technology

KRAUS, SIDNEY. "Modifying Prejudice: Attitude Change as a Function of the Race of the Communicator." *AV Communication Review* 10: 14-22; January-February 1962.

LEVONIAN, EDWARD. "The Use of Film in Opinion Measurement." *AV Communication Review* 10: 250-54; July-August 1962.

LEVONIAN, EDWARD. "Opinion Change as Mediated by an Audience-Tailored Film." *AV Communication Review* 11: 104-13; July-August 1963.

MEREDITH, PATRICK. "Toward a Taxonomy of Educational Media." *AV Communication Review* 13: 377-88; Winter 1965.

MCNEIL, IRVING R. "Attitude Films and Attitude [illegible]." *AV Communication Review* 10: 3-13; January-February 1962.

MITZEL, HAROLD E. "Teacher Effectiveness." *Encyclopedia of Educational Research.* Third edition. (Edited by Chester W. Harris.) New York: Macmillan Co., 1960. pp. 1481-86.

PAULSON, CASPER F. *An Examination of the Structure and Effectiveness of Slide-Tapes Produced by Rational Analysis and Self-Sequencing Techniques.* U.S. Office of Education, NDEA Title VII Project No. 5-0952. Monmouth: Teaching Research Division, Oregon State System of Higher Education, June 1967. 30 pp. (a)

PAULSON, CASPER F. "Specifying Behavioral Objectives." *National Research Training Institute Manual for Participants in Research Development (CORD) Projects.* Monmouth: Teaching Research Division, Oregon State System of Higher Education, August 1967. Part II, pp. 1-13. (b)

QUALOCK, HENRY D.; BEARD, JAMES H.; and SIMMONS, HELEN. *Motion Pictures as Test Stimuli: An Application of New Media to the Prediction of Complex Behavior.* U.S. Office of Education, NDEA Title VII Project No. 971. Monmouth: Teaching Research Division, Oregon State System of Higher Education, December 1964. 465 pp.

SCHERER, GEORGE A. C. *Extended Classroom Experimentation with Varied Sequencing of the Four Skills in German Instruction.* U.S. Office of Education, NDEA Title VI Project No. SAE-8823. Boulder: University of Colorado, March 1963. 270 pp.

SEIBERT, WARREN F., and SNOW, RICHARD E. "Cine-Psychometry." *AV Communication Review* 13: 140-58; Summer 1965.

SMITH, HOPE M., and CLIFTON, MARGUERITE A. *The Viewing of Oneself Performing Selected Motor Skills in Motion Pictures and Its Effect upon the Expressed Concept of Self in Movement.* U.S. Office of Education, NDEA Title VII Project No. 486. Los Angeles: University of California, August 1961. 20 pp. (Mimeo.)

SMITH, M. DANIEL. *The Interaction of Words and Graphic Symbols, Investigated via a Programed Sequence of Concept Formation Experiences Related to Vector Spaces.* U.S. Office of Education, NDEA Title VII Project No. 5-0688. Richmond, Ind.: Earlham College, 1967. 29 pp.

SMITH, PHILIP D. *Knowledge of Results and Continuity of Various Techniques in Presenting a Filmstrip as Factors in Immediate Learning and Retention.* U.S. Office of Education, NDEA Title VII Project No. 719. Greenville, S.C.: School of Education, Bob Jones University, 1964. 234 pp.

SMITH, R. G. *The Design of Instructional Systems.* Technical Report No. 66-18. Alexandria, Va.: Human Resources Research Office, George Washington University (300 North Washington St.), November 1966. 85 pp.

STAKE, ROBERT E., and SJÖGREN, DOUGLAS D. *Activity Level and Learning Effectiveness.* U.S. Office of Education, NDEA Title VII Project No. 753. Lincoln: University of Nebraska, March 1964. 95 pp.

SULLIVAN, HOWARD J. *The Effects of Selected Film and Counseling Experiences on Capable Girls' Attitudes Toward College.* U.S. Office of Education, NDEA Title VII Project No. 1159. Monmouth: Teaching Research Division, Oregon State System of Higher Education, September 1964. 58 pp.

TRAVERS, ROBERT M. W., editor. *Research and Theory Related to Audiovisual Information Transmission.* U.S. Office of Education, Interim Report, Contract No. 3-20-003. Salt Lake City: Bureau of Educational Research, University of Utah, July 1964. (Offset)

TWELKER, PAUL A. *Rules, Answers, and Feedback in Learning, Retention, and Transfer of Concepts.* Paper presented to the American Educational Research Association, February 1965. Monmouth: Teaching Research Division, Oregon State System of Higher Education. 18 pp. (Mimeo.)





VANDEMEER, A. W. *An Investigation of the Improvement of Informational Filmstrips and the Derivation of Principles Related to the Improvement of These Media: Study No. III.* U.S. Office of Education, Grant No. 736049. University Park: College of Education, Pennsylvania State University, 1964. 147 pp.

VANDEMEER, A. W., and MONTGOMERY, R. E. *An Investigation of the Improvement of Informational Filmstrips and the Derivation of Principles Relating to the Improvement of These Media: Study No. III.* U.S. Office of Education, Grant No. 736049. University Park: College of Education, Pennsylvania State University, 1964. 126 pp.

VANDEMEER, A. W., and THORNE, [illegible]. *An Investigation of the Improvement of Informational Filmstrips and the Derivation of Principles Relating to the Effectiveness of These Media: Study No. I.* U.S. Office of Education, Grant No. 736049. University Park: College of Education, Pennsylvania State University, 1964. 93 pp.

[illegible], W. W.; HAMMOND, JACK; and SMITH, PHILIP. *An Investigation of the Improvement of Educational Motion Pictures and a Derivation of Principles Relating to the Effectiveness of These Media.* U.S. Office of Education, Grant No. G736048. University Park: College of Education, Pennsylvania State University, April 1965. 93 pp.

## Additional References

BAIRD, JAMES H., and STANDISH, JOHN T. *Audiostimulation in Counselor Training.* U.S. Office of Education, NDEA Title VII Project No. 1246. Monmouth: Teaching Research Division, Oregon State System of Higher Education, December 1964. 53 pp.

CUNNINGHAM, A., and KNOSS, [illegible] P. *Experimental Analyses of the Effects of Various Modes of Item Presentation on the Scores and Factorial Content of Tests Administered by Visual and Audio-Visual Means.* U.S. Office of Education, NDEA Title VII Project No. 585. Gainesville: School of Education, Florida State University, 1962. 83 pp.

ECKSTRAND, GORDON A. *Current Status of the Technology of Training.* Report No. AMRL-TR-64-86. Wright-Patterson Air Force Base, Ohio: Aerospace Medical Research Laboratories, September 1964. 29 pp.

ERAUT, MICHAEL R. "An Instructional Systems Approach to Course Development." *AV Communication Review* 15: 99-101; Spring 1967.

FAYEN, ROBERT D. *Immediate Learning Reinforcement in a Complex Mental-Motor Skill (Driver Training) Using Motion Pictures—Phase II.* U.S. Office of Education, NDEA Title VII Project No. 6050-H. Harrisburg: Bureau of Research, Department of Public Instruction, Commonwealth of Pennsylvania, 1965. 33 pp.

LEVONIAN, EDWARD. "Development of an Audience-Tailored Film." *AV Communication Review* 8: 62-68; Winter 1960.

LUMSDAINE, A. A., editor. *Student Response in Programmed Instruction: A Symposium on Experimental Studies of Cue and Response Factors in Group and Individual Learning from Instructional Media.* Publication No. 943. Washington, D.C.: National Academy of Sciences—National Research Council, 1961. 555 pp.

MCCRYSTAL, THOMAS J., and JACOBS, T. O. *The Effect of Programed Instruction Response Conditions on Acquisition and Retention.* Technical Report No. 66-20. Alexandria, Va.: Human Resources Research Office, George Washington University (300 North Washington St.), December 1966. 32 pp.

MELCHING, WILLIAM H., and NELSON, FRANK B. *The Influence of Practice Frames and Verbal Ability on Programed Instruction Performance.* Technical Report No. 66-1. Alexandria, Va.: Human Resources Research Office, George Washington University (300 North Washington St.), January 1966. 22 pp.

MILLER, ELMO E. *A Classification of Learning Tasks in Conventional Language.* Report No. AMRL-TDR-63-74. Wright-Patterson Air Force Base, Ohio: Aerospace Medical Research Laboratories, July 1963. 15 pp.

PAULSON, CASPER F., JR. *Slow Learners, Competition, and Programed Instruction.* U.S. Office of Education, NDEA Title VII Project No. 1083. Monmouth: Teaching Research Division, Oregon State System of Higher Education, August 1964. 44 pp.



Fig. 2. Density of Title VII citations on one page of the April, 1968 issue of the *Review of Educational Research* (circled=direct link, X=indirect link).

Some reflection of Title VII's ability to attract new people into the field is indicated by the number of directors first appearing in 1968 (see Figure 3).

The April 1968 issue of *Review of Educational Research* carried the names of 99 directors or co-directors of Title VII projects which had not previously been represented. The April 1962 issue carried 28 directors who did not appear in 1968. Appearing in both the 1962 and 1968 issues were 39 directors.

THE MARGINAL LEGIBILITY OF THIS PAGE IS DUE TO POOR ORIGINAL COPY. BETTER COPY WAS NOT AVAILABLE AT THE TIME OF FILMING. E.D.R.S.

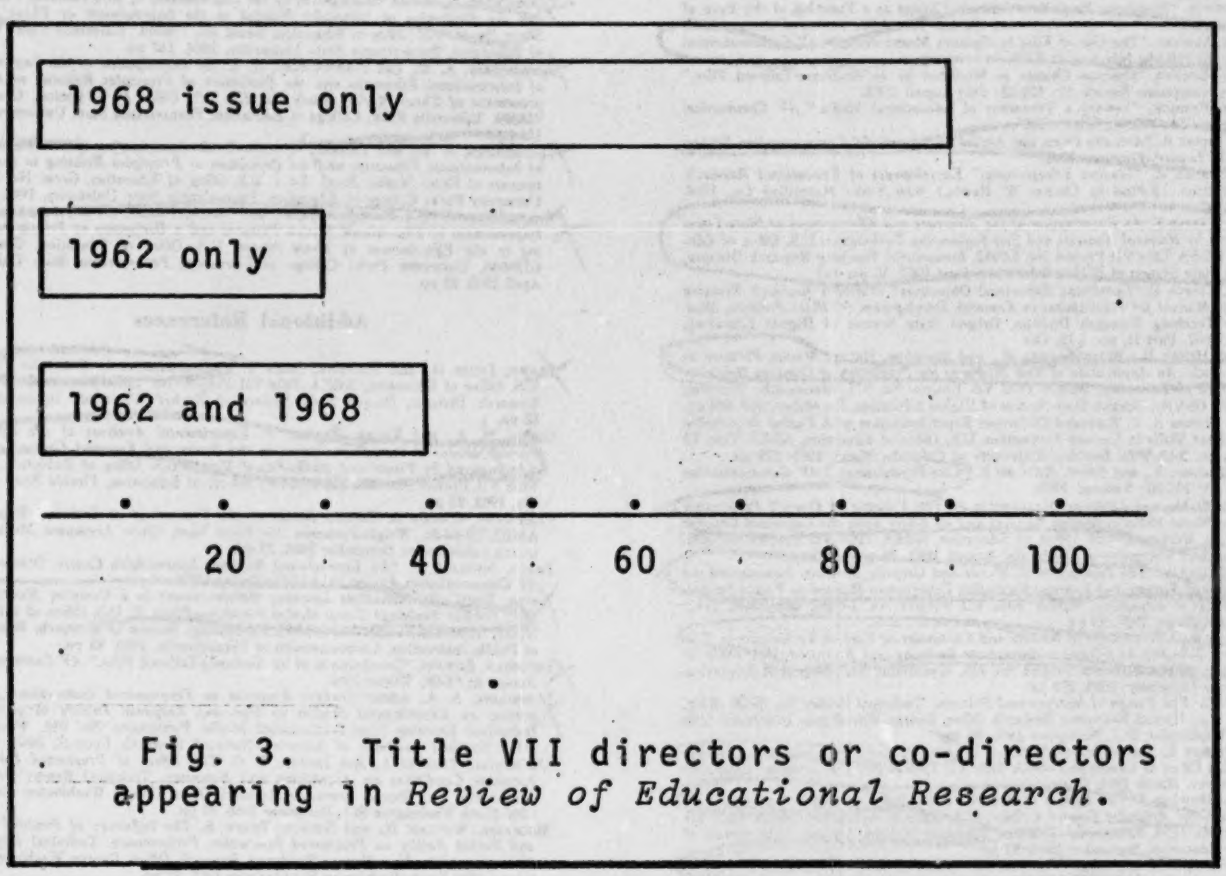



Fig. 3. Title VII directors or co-directors appearing in *Review of Educational Research*.

Consequently, it would appear that the outcomes of Title VII projects were "highly visible" in this "medium-band" publication, both in 1962 and 1968, and that, as evidenced by this one publication, they had the potential for implementation by the educational research community.

The April 1968 *Review of Educational Research*, which drew so heavily on Title VII sources, was about the best received of the last cycle of 15 *RER* topics (from June 1965 through June 1968), as reported in a recent study by Linda Harris. This judgment by the *RER* readership would tend to amplify the "value" magnitude of the Title VII citations.

"Narrow-Band" Analyses

One revealing way to measure the impact of Title VII on scholarly production in educational media and technology is to consider what publications in educational media and technology that appeared during the active years of Title VII were considered worth reviewing or summarizing by competent scholars in the field. We have therefore examined

two such scholarly reviews of the field that appeared in the middle 1960's:

> Reid, J. C. and MacLennan, D. W. *Research in Instructional Television and Film* (completed at the beginning of 1965, but published in 1967 by the U. S. Government Printing Office, Washington, D. C., Catalog No. FS 5.234:34041).
>
> Lumsdaine, A. A. and May, M. A. "Mass Communication and Educational Media" (completed at the end of 1964, and published in the *Annual Review of Psychology*, Palo Alto, California, 1965, pp. 475-534).

It would be expected that the proportion of Title VII citations would be somewhat higher than in the case of learned journals because these reviews would not be limited to printed materials. They would also include monographs and reports circulated in advance of publication. Even allowing for this, however, the results leave no doubt of how leading scholars in the field felt about the importance of Title VII research. In the Reid and MacLennan review volume, a minimum of 40 percent and a maximum of 53 percent (depending on what titles were excluded as either outside the specified limits or else irrelevant to the subject) were examples of Title VII research. In the Lumsdaine-May review, a minimum of 44, or a maximum of 49 percent of the report (depending, again, on what was excluded), were the results of both topical and financial connections to Title VII research.

In the case of the Reid-MacLennan book, we faced the problem of what to do with 43 post-1959 dissertations, which had been summarized from *Dissertation Abstracts* and for which we were unable, in the time at hand, to ascertain whether they were or were not related to Title VII grants or contracts. The students who did the dissertations, of course, would not appear as principal investigators on a Title VII proposal, and therefore could not be checked against a list of Title VII projects. Some of the dissertations were known to us to have been written in connection with a Title VII project, but rather than guess at how many were and how many were not, we excluded the dissertations. However, we also figured the proportion of Title VII origins assuming that none of the dissertations came from Title VII projects (see Figure 1).

The Lumsdaine-May review contained a negligible number of post-1959 dissertations (4), but presented several other coding problems.

For one thing, it was expected to cover "mass communication" as well as "educational media," and therefore included a certain number of titles (such as Joseph Klapper's book on *The Effects of Mass Communication*, and Kraus' book on *The Great Debates*) which had no direct relationship to educational media. We excluded these.

The most troublesome problem was the presence in the Lumsdaine-May review of 20 papers, listed individually and constituting almost the entire contents of a volume of collected studies entitled *Student Response in Programmed Instruction*. This important volume was edited by Lumsdaine, and published in 1961, but it was made up almost entirely of studies done on Air Force funds in the early or middle 1950's. Should these 20 papers be considered along with other work published after 1959? We figured it both ways, with and without the 20 papers in the basic sample. The difference was about 5 percent in proportion of Title VII items, such as Figure 1 shows.

Finally, we found three papers in the Reid-MacLennan volume, and four in the Lumsdaine-May review, which could not be coded without retrieving some essential item of information that was not available to us and could not be found in the time at hand. We excluded these.

To sum up, when the exclusions were made, we had 124 items as a basic sample from the Reid-MacLennan volume (167 if the dissertations were included), and 210 from the Lumsdaine-May review (230 if the papers from *Student Response* were included), all published between the beginning of 1960 and the end of 1964. It was these samples that we examined for possible origins in Title VII.

We must be alert to possible error and to difference of opinion on the distribution of items into categories. Nevertheless, the error in coding is more likely to be in favor of than against Title VII, because of the difficulty in tracing down relationships between published titles and project titles. As for the problem of distributing items into categories, we have tried to say exactly what we did, and in the case of the two most doubtful decisions (dissertations in Reid-MacLennan, *Student Response* papers in Lumsdaine-May) we have figured it both ways.

With these caveats, then, we can say that approximately half of all the educational media items, published between the beginning of 1960 and the end of 1964 (which four reputable scholars felt were worthwhile summarizing or reviewing for their colleagues), originated in Title VII projects.

It is necessary to ask why these rather impressive results are so different from results obtained from the "wide-band" analysis. One possible reason is that they were measuring rather different things. For example:

1. Such large numbers of citations were dealt with in the "wide-band" analysis that it was difficult to look much beyond author and title. Authors are notoriously lax about giving credit to research grants in their journal articles, and article titles frequently do not accord with Title VII project titles.

2. Despite all the advantages of a computer in being able to handle great masses of material, sometimes there are advantages in a problem of working directly with the data. The human computer has certain information stored and can make certain adaptations that the IBM version usually does not or cannot. For instance, it was known to us that certain authors were at certain universities while doing the research they reported, and it was therefore possible to look farther into Title VII records in order to find out whether the author had been working on a Title VII contract at a certain university, even though he was not the principal investigator. Furthermore, when a title did not quite agree with the contract title as listed by the Office of Education, it was possible to read the abstracts to find out whether this was indeed the same Title VII project. Furthermore, it would be extremely hard, if not impossible, for a computer to identify and separate out items such as we eliminated from the Lumsdaine-May list--that is, items that dealt with general communication or were textbooks, reviews of earlier Title VII reports, or public addresses, rather than research products.

Thus, it is probable that these results represent at once a somewhat higher proportion of identification of Title VII origins, and also samples that are more likely to contain Title VII reports because they are restricted to experts' judgments of what is worthwhile in the literature of educational media.

## CONVENTION PROGRAM REVIEW

One way in which dissemination of information about projects funded under programs such as Title VII occurs is through the annual convention meetings of national professional associations. Researchers, teachers, administrators, and other professionals convene and exchange information of current interest among themselves and with others who attend.

To review these dissemination activities and to observe any significant trends, the convention programs of four organizations were examined: the American Psychological Association (APA); the American Association of School Administrators (AASA); the American Educational Research Association (AERA); and the Department of Audiovisual Instruction, National Education Association (DAVI). The names of 529 Title VII project directors and associates were matched against eleven years of annual convention programs for DAVI, eleven years of AERA, ten years of APA, and eleven years of AASA, for the years 1959 through 1969.

The names of 225 of the 529 Title VII project-related persons appeared in the programs of these organizations, either during the time or shortly after they were associated with a Title VII project. Title VII project personnel whose names appeared in meeting participation lists before their Title VII activity, were not counted.

It was found that, with the exception of DAVI, the proportion of convention sessions devoted to instructional media was very small--2.5 percent for APA, and 3.6 percent for AAAS and AERA. The number of Title VII project directors among speakers at the conventions ranged from 1 percent for AAAS to 7 percent for DAVI. The percentage of papers directly acknowledging support from Title VII was miniscule. It must be remembered, however, that relatively few papers acknowledged their sources. A comparison of titles demonstrates that during these years at least 42 papers definitely reporting Title VII research were heard at DAVI conventions, 36 at APA, 26 at AERA, and 9 at AAAS.

As might have been expected, the peak of Title VII's visibility at the meetings of the learned societies came in the middle 1960's when the largest number of Title VII research projects were being completed. The number of sessions devoted to media at both AAAS and AERA meetings was significantly greater after 1966, however, and this may be an indirect effect on the increased visibility given to problems related to educational technology by Title VII.

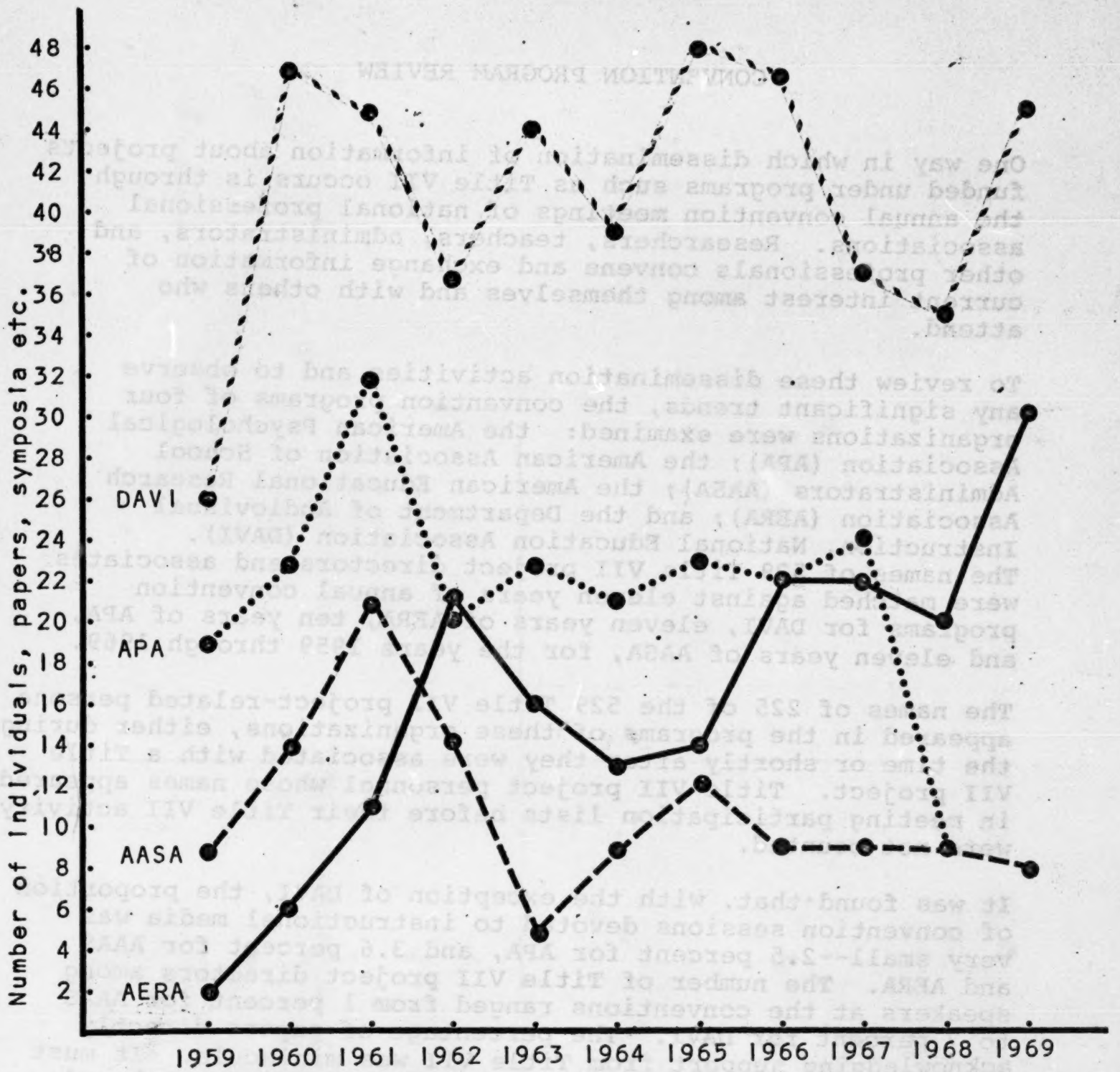



Fig. 1. General participation of Title VII personnel.

Figure 1 compares the number of reports given by Title VII participants for each organization on a year-by-year basis. In all, 122 out of the 225 persons who were involved with Title VII projects and attended the conventions were there for the purpose of giving a report. They either read a paper or took an active role in a symposium directly related to the exact topic of their Title VII project. While other participants from the total 225 project participants were also active in the areas of their recognized competencies--they chaired meetings or were officials--there is direct evidence that Title VII projects were discussed only by individuals from the group of 122 people.

Figure 2 shows that the peaks of AERA, APA, and DAVI activity for 1965 or 1966 correspond to years in which more Title VII projects were in progress. Thus, the more projects in progress, the more reports were given. Over the period covered, APA heard a total of 36 repo. ts, DAVI heard 42, whereas AERA and AASA heard 26 and 9, respectively.

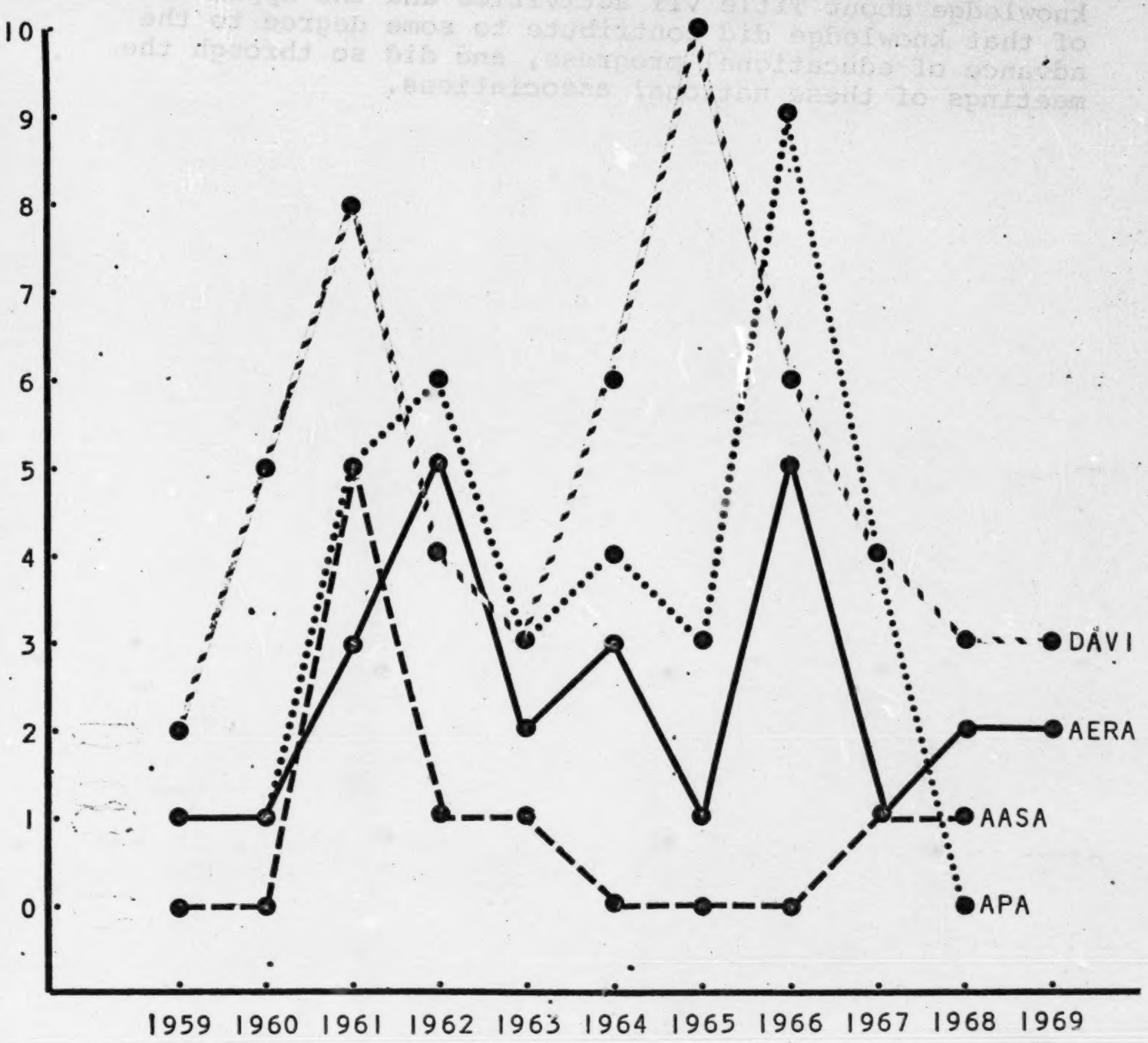



Fig. 2. Title VII reports presented.

A distinctly noteworthy, though limited, amount of information about Title VII projects apparently was disseminated through these professional groups. While it was not an overwhelmingly large effort, at least 122 people did directly communicate their findings and 103 others were available to relay information.

In addition, media and media-related topics have gradually gained importance on these convention programs. Thus, knowledge about Title VII activities and the application of that knowledge did contribute to some degree to the advance of educational progress, and did so through the meetings of these national associations.

## METHODOLOGY OF RESEARCH STUDIES FUNDED UNDER TITLE VII A

For the purposes of the present analysis, it was hypothesized that the influx of funds from Title VII A into the area of educational media research would result in research of increasingly higher methodological quality. The reason for this would be that funding attracted better research talent and facilitated the implementation of more elaborate research approaches. The social science methodology of studies funded later in the period would generally be superior to the methodology of earlier studies. To test this hypothesis a critical analysis of the methodology of studies funded by Title VII A during its ten-year period was conducted.

During the life of Title VII, approximately 230 data producing research studies were funded under Title VII A. To conduct a critical analysis of the methodology of these studies, a manageable sample of about 80 studies was drawn, approximately one-third of the total. Before drawing the sample, the population of studies was stratified by the quality of the institution where it was conducted, by date of publication, and by type--experimental or survey. Institutions were classified into high and low quality categories on the basis of Berelson's 1960 ratings.

At each stage in the collection and analysis of data, "good" methodology is defined as a reasonable attempt to control irrelevant sources of variance and a reasonable attempt to achieve accurate measurement of relevant sources of variance. Whether an attempt is reasonable or not depends in certain instances upon the nature of the variable and the conditions under which it is measured. Although a critical analysis of methodology is inherently subjective, an attempt was made to avoid the extremes in this analysis. An analysis guide was developed and reviewed by colleagues. It was then applied by one individual with another person conducting periodic "spot checking" for accurate application. No claim is made that the research methodology of studies funded under Title VII A is any better or any worse than social science methodology in any other area. An attempt was made to confine the analysis to the simple question of whether, in relation to itself, the methodology became better or worse during the funding period.

In general, the quality of the methodology remained the same. The ratio of good methodological qualities to bad was about the same at the end as it was at the beginning. Of course, certain improvement trends were noted. Although none of the trends were overwhelming, the mere existence of some improvement indicates that more general methodological improvement might have become evident had a longer period of time been involved. Perhaps ten years is too short a period for funding to have a measuarable effect on research methodology.

Because relatively few studies were published during the early years of the Title VII period, the first three years were grouped into one time category, and the last three years into another. Two middle categories consisted of two years each. The sample was randomly selected within the stratification categories. The methodology of each study was carefully examined, and then a methodological abstract written in accordance with a standard outline format (see Table 1 below)

TABLE 1

OUTLINE--BASIS OF METHODOLOGICAL ABSTRACTS

I. Identifying Information
   a. author's name
   b. author's affiliation
   c. geographic location of affiliation
   d. date of study publication

II. Stated Objective of the Study
   a. policy
      --evaluation of a particular instrument
      --comparison of two instruments
      --diagnostic evaluation
      --evaluation of a class of instruments
   b. science--hypothesis testing and theory building

III. Variables
   a. control variables
      --individual demographic variables
      --individual psychological variables
      --group demographic variables
      --group psychological variables
      --study procedures used for control purposes
   b. study variables
      --number of agent variables
   c. replication present as a variable
   d. time present as a variable

IV. Sample
- a. definition of population
- b. sampling unit
  - --individual
  - --group
    - --co-variance analysis present
    - --matching
    - --stratification
- c. selection of unit
  - --random
  - --accidental
  - --representative
- d. assignment to group
  - --random
  - --accidental
  - --representative
- e. assignment of group to experimental condition
  - --random
  - --accidental
  - --representative
- f. sample size
  - --total sample
  - --number of groups
  - --approximate number per group
  - --minimum group size
  - --reason for variance in group size
- g. subject matter sampled
- h. sample reliability and validity checks, number and type

V. Data Collection
- a. data collection setting
  - --lab experimental
  - --field experimental
  - --field natural
- b. study design
  - --experimental--Campbell and Stanley category
    - --complete or incomplete application of design
    - --modifications and elaborations present
  - --survey
    - --mail
    - --telephone
    - --personal interview
- c. instrument
  - --single
  - --obtrusive
  - --test, observation, questionnaire or interview
  - --development
    - --pre-test, sample size of pre-test
    - --validity and reliability checks
- d. single or multiple time points

VI. Analysis of Data
    a. unit of analysis
        --individual
        --group
    b. coding
        --type
        --reliability checks
    c. statistics
        --types
        --single or multiple criterion measures
        --conditions of criterion test adequately stated
    d. interpretation
        --adequate discussion of alternate hypothesis
        --proper discussion of null hypothesis
    e. validity checks on final results

During the analysis, stratification by institutional quality proved to be a pointless distinction, and is not discussed. The quality of a study seems to depend more upon the individual researchers and the nature of the problem studied than upon the institution where it was done. Most studies were conducted at universities, while a few were conducted by nonprofit research corporations and research agencies affiliated with public education organizations. The studies included in the sample came from institutions in 26 states. The greatest number were conducted by institutions located in Pennsylvania, followed by Indiana, California and Illinois. Most of the studies listed only one author. Two author studies were the next most common, followed by three author studies. There were very few four author studies.

Most of the studies introduced themselves with a statement of purpose. Statements of purpose were classified either as policy or science-oriented. Less than 20 percent were science-oriented where hypothesis testing and theory building were undertaken. Most stated their purpose exclusively in policy terms (for example: evaluation of a particular instrument, comparison of two instruments, diagnostic evaluation). Most studies attempted to evaluate a particular instrument and stated this as their only goal. These studies were conducted to see whether a particular teaching machine program was effective, or whether a particular film could teach effectively.

Policy research is more practical in a particular situation, but this specialization limits application. For example, instead of attempting to answer the more general "science" questions of how and why television is effective in teaching, policy studies tended to limit their purpose to a specific

application. This results in the somewhat silly spectacle of a study proving television is effective in teaching chemistry, followed by a study proving television is effective in teaching driver's training, and so on. Policy orientations remained dominant during the entire ten-year period studied, and there was no detectable increase in science-oriented studies.

Aside from their stated purpose, studies were also rated on whether or not they attempted to sample subject matter. Even with a stated policy purpose of evaluating a particular instrument, the potential of generalizing from the assessment was increased if this instrument were evaluated in a number of subject areas. Some studies did attempt to include a sample of subject matters as part of their research design, but these studies were relatively few and their numbers did not increase as the years passed.

Trends are discernible, however, in the sampling procedures that were employed to select objects for study. In the first time period there was heavier use of intact groups, which were selected on an accidental basis, and then assigned to treatment conditions on an accidental or representative basis. A selection is accidental when the researcher has little control over the process; for example, when he has to depend upon volunteers and accept all available volunteers. Selection is representative when the researcher attempts to ascertain the qualities of the units in his population or sample, and select or assign on that basis.

Although individuals rather than groups were used as the sampling unit during the funding period, there was a predominant dependence upon accidental selection of the sampling unit. This trend in units was accompanied by an increase during each period in the cases in which assignment to experimental conditions was done on a random basis. This trend toward an increase in the use of random assignment indicates methodological improvement. Some of the bias introduced by having to depend upon units selected accidentally can be eliminated when the unit is assigned to treatment groups on a random basis.

In spite of the trend away from accidental selection, the dependence upon this "approach" throughout the ten-year period remains a problem, however, particularly when it is noted that reliability and validity checks of the sample were relatively rare, and increased in frequency only slightly. When a researcher cannot select his unit on a random basis, he should at least check to see how representative it is of the population after he has acquired it accidentally. The

failure to check representation is inexcusable when populations of students are commonly involved, because data archives usually are available for the whole population and can be used to make comparative checks. In many studies these archives were used to check the comparability of treatment groups without bothering to check the sample against the population. In most studies examined, the reliability and validity of the sample were assumed.

After the sample is selected, the collection of the data begins. The data collection setting of the studies and most of the studies were classified as field experiments. There was an interesting trend for laboratory experiments to increase in later years. There were almost no laboratory experiments in the first period, and few in the second, but in the third and fourth there were almost as many laboratory experiments as field experiments. This represents an attempt by researchers to achieve greater control. In a field experiment the study is necessarily constrained by being made part of an ongoing learning situation, while in the laboratory the experimenter's purposes are paramount.

Research designs employed in the data collection were categorized on the basis of the classification in Campbell and Stanley's monograph (1963). On the basis of this categoriation it became obvious that there was little variation in the basic research design of the studies examined. The vast majority could be categorized as "pretest-posttest control group design," number four in Campbell and Stanley's listing. The next most popular, but far fewer in number, was the "posttest-only control group design," Campbell and Stanley's number six. There were only two instances in which the highly recommended Solomon four group design was employed (Campbell and Stanley's number five). No trends over time in type of design usage were evident.

Although most studies used the basic "pretest-posttest control group" research design, few used it without some elaboration. Instead of just one treatment group and one control group, most studies had multiple treatment groups, and many had multiple control groups. In about 30 percent of the studies in each time period, multiple groups were arranged to provide some degree of internal replication. This is an excellent design feature which can be used in reliability. There was no trend toward an increased use of this feature, however.

The instrument employed in the pretests and posttests was classified according to whether it was standard, or was constructed by the researcher. Standard instruments were most

commonly the general intelligence and ability tests used to measure students, but included any instrument that had had some general circulation and application. Constructed instruments were those devised by the researcher for application in the particular study. There was a weak tendency for standard instruments to be employed more frequently than constructed ones in research conducted during the first time period. In succeeding time periods, relatively fewer standard instruments were used, while more constructed ones were used.

The increase in researcher constructed instruments was accompanied by slight increases in the number of reports of pretesting of instruments, and reliability and validity checks of instruments. Ideally, no instrument should be put into use unless it has been pretested, and its reliability and validity should always be checked after use. Unfortunately, there are studies in all of the time periods that fail to report these precautions, and later periods are no better than early ones.

In even the most perfect studies, several alternative explanations for the obtained results usually compete with the reason the researcher thinks is most relevant. The extent to which a researcher gives consideration to these alternative hypotheses and is able to demolish them in his discussion of results, is an indication of the methodological quality of the study. No study is perfect, and no study should accept its results without giving some attention to alternative hypotheses. A researcher who fails to to give consideration to alternative hypotheses is probably assuming away some threats to the validity of his findings. Discussion of alternative hypotheses is skimpy or absent in some studies conducted in later time periods as well as in some conducted during early years. There is no trend toward improvement.

Another problem that is not major, but that does persist in all of the time periods, is the correct interpretation of the null hypothesis. Under strict statistical theory, when the null hypothesis is confirmed this can only be interpreted as an inconclusive finding. It cannot be taken as positive evidence of no difference between groups or treatments. The null hypothesis is incorrectly interpreted when it is taken as evidence that two treatments are equally effective, as, for example, when it is taken to mean that television is as effective as the method of teaching with which it was compared. This abuse is not common, but it occurs in late as well as early studies.

If one can make a claim for the influence of Title VII on methodology, it must rest on the conclusions of observers that the Title VII staff and committee, insisting from the first on high standards of research technique, did hold up a high standard for the field and especially for young researchers entering it.

# THE IMPACT OF TITLE VII ON FIVE EDUCATIONAL MEDIA

Between 1958 and 1968, the utilization of media in education gave rise to at least five promising new educational techniques: microteaching, dial access systems, flexible scheduling, 8 mm single concept film and closed-circuit television. The purpose of this investigation was to survey the numerous research, experimentation, and dissemination efforts associated with each of these techniques and to ascertain the precise role, if any, that Title VII played in their development.

## Definition of Terms

Microteaching refers to a training concept which can be applied at various pre-service and in-service stages in the education and training of teachers and other professional personnel.[1] Simply stated, microteaching is a scaled-down teaching encounter. It provides teachers with a practice setting for instruction in which the normal complexities of the classroom are reduced and in which the teacher receives a great deal of immediate feedback and focused supervision on his performance. To minimize the complexity of the normal teaching encounter, several dimensions are limited: class size, scope of content, and length of time. In microteaching, the teacher instructs three to five students, instead of the normal 25 to 30, for five to ten minutes. Gradually, both pupil- and time-modules are increased. During this teaching encounter, the teacher concentrates on a specific training skill or technique and utilizes several sources of feedback, such as the supervisor, the students, the teacher's own reflection, and the playback of videotape recordings of his performance. All this feedback can be immediately translated into practice when the teacher trainee re-teaches shortly after a critique conference.

The process of centrally storing and electronically transmitting various types of information from remote locations has been designated by various labels, *e.g.*, dial access, or remote access, information storage and retrieval. Dial access systems include a telephone type dial selection, push button selection, digital selection, or rotary switch

---

[1]Allen and Ryan, *Microteaching*, 1969.

selection device.[2] Simply stated, a dial access system is an audiovisual technique which in its finally expanded form should permit an almost unlimited resource of learning materials to be electronically searched and the selected materials delivered to almost any destination by dialing a set of catalogued precoded numbers or letters. Dial access systems are designed to provide instant connection to comprehensive libraries of both print and nonprint materials that may be miles in distance from the student in his school. The information is provided upon a television tube, flexowriter, earphones or vacuum pipe.

Individual students have access to such materials as motion pictures, filmstrips, slides, taped ETV presentations, recorded information, and any classroom lessons that are audio or video recorded. A student orders from a central storage-retrieval center the materials he wants to view or hear. The student dials a coded program number, and the material is presented in a student carrel. This system adds a new dimension to individualized instruction and provides a multi-sensory dimension to the learning process.

Dial access systems also are used as a dissemination service to provide educators and researchers with information on the latest teaching innovations and research ideas, current thinking about educational problems, and up-to-the-minute information on innovations occurring on the educational scene.

Flexible scheduling is a way of arranging units of teaching staff, instructional content, facilities, students, time, and instructional needs in a flexible, and hence more effective, manner. Such programs are often undertaken with the assistance of computers because of the voluminous data and alternatives that must be considered, the technique specifies the place and time that each class will meet, the students who are to constitute the class, and the teacher or teachers who are to meet with the class. Through such scheduling, educators seek to establish the best possible climate for learning.

The flexible scheduling technique is based on a very different set of assumptions from the traditional schedule. At the heart of the plan is a complete reorganization of the school day into 20- or 30-minute periods, instead of 40- or 50-minute ones. This enables school officials to combine two or more

---

[2]This exposition of the use of dial access systems is derived from the May, 1967 issue of *Audiovisual Instruction*.

periods together for subjects that require much classroom work, or to use the single, much shorter, periods for subjects that do not. In terms of time, each day's order need not be like that of any other day. Teaching assignments require varying amounts of time and,hence the periods assigned should also vary. Group sizes also vary.

Flexible scheduling, however, should not be viewed as merely a game of time and group-size distribution. What happens within the schedule is a major determinant of the quality of the school's instruction. Concurrent with this approach is the mandatory implication that there will be new instructional techniques and materials. Thus team teaching, increased use of technological media, carefully pre-planned building design, and new curricula must often be utilized extensively and effectively in the implementation of flexible scheduling.[3]

The 8 mm film format emerged on the educational scene a decade ago.[4] It has evolved from a traditional amateur home movie product to a medium of great potential for serving educational needs. One of the most significant features of 8 mm film is that insofar as the films and projection equipment are inexpensive and easy enough to operate, each student can view an individual program and the learner controls film movement instead of the instructor. Thus it is possible for the student to stop projection and examine a single frame, to reverse projection, to run the film in slow motion, to move from one area of illustration to another by changing films, or return the film. The student is able to view the film again and again, to see it in relation to another set of films, or in a different context. Furthermore, he usually can view the film at his own convenience, with small groups of his peers, or in quiet concentration. The effect upon the student of this kind of freedom of curiosity has interesting ramifications in terms of learning. If one assumes that the student is the best guide of what he wants to know, this format can increase the efficiency of his learning, bearing in mind that while the sequence of his learning is not rigidly structured in this type of approach, the films themselves are.

---

[3]Appreciation is extended to the staff of Educational Coordinates, Inc., in Palo Alto, and the writings of Dwight Allen for the definitional framework of flexible scheduling.

[4]Factual information defining this concept is primarily taken from the *Educational Product Report* (December 1968 and January 1969).

The 8 mm film varies from other film formats in that in-house film production by the school staff and students is fairly easy to accomplish. The low cost of 8 mm equipment plus the automated nature of the cameras and projectors make it possible even for nursery school children to enjoy the experience of film-making. Film processing is usually available locally and is also fairly inexpensive.

Closed-circuit television (CCTV) programs are transmitted via cable, microwave or the new 2500 Megahertz Instructional Television Fixed Service (ITFS) exclusively to a particular audience with specially equipped TV receivers. There is relatively unlimited access to channels in the CCTV spectrum where as many as 12 different TV or audio programs can be simultaneously distributed. As long as it is not possible for unauthorized TV monitors to intercept and reproduce the programs or information being transmitted by a television system, the designation "closed-circuit" television holds.

Closed-circuit television systems range from the simple to the complex. Of special significance to education is the fact that up to five programs (five channels to each licensee) may be transmitted and received simultaneously in any given educational institution. This largely eliminates the major problem in previous educational utilization of television (open-circuit systems)--that of scheduling. The use of multiple channels opens up new scheduling possibilities more attuned to the needs of individual schools as well as creates the potential of broader offerings from which teachers and students can choose. Not only does this system permit a given school to receive and schedule several different instructional programs at the same time, but the system also creates television channels in geographical areas where all the existing broadcast channels have been assigned.

This new service, however, is intended to supplement rather than replace the standard ETV broadcast service. Its presence merely suggests that a single educational television channel no longer suffices to handle adequately the many programming needs of the typical community. These needs range from in-school instruction of students to in-service education of teachers, adult training, and vocational education, out-of-school general information programs for children and adults, as well as communication and administrative uses within a given school or between schools, and/or between the schools and other community agencies.

## Research Instrumentation

The examination of the impact of the five media was retrospective in nature and limited in both time and cost. Consequently, traditional experimental and quasi-experimental research techniques were not employed. Instead, this investigation has used what Eugene Webb, Donald Campbell, and their associates define as a form of using "unobtrusive measures"--namely, the search of archival records.[5]

The term "unobtrusive measures" in the context of archival records refers to the examination and evaluation of data periodically produced by someone other than the present researcher for purposes other than those of the particular investigation at hand. It can include such things as administrative records, documents, diaries, journals, budget ledgers, communication media (newspapers, magazines, for example), and library collections of many types. These data can be successfully utilized as a scientific data source to form a running record or longitudinal study when other data-collecting techniques do not prove feasible. Besides the low cost of acquiring a massive amount of pertinent data in a reasonable time, one common advantage of archival material is its nonreactivity. That is, although there may be substantial errors in the material, it is not usual to find masking or sensitivity because the producer of the data knows he is being studied by some social scientists or evaluators. These gains made the use of archives most attractive for the purposes of this investigation.

## Data-Collecting Procedures

Archival data for this investigation were secured from the microfiche document collection in educational research at the ERIC Clearinghouse on Educational Media and Technology in the Institute for Communication Research of Stanford University.

Thanks to an advanced computer system ("ERIC on Line") developed by the Lockheed Missiles and Space Company and presently in operation at Stanford under experimental funds from the U. S. Office of Education, an exhaustive search of the more than 15,000 educational research abstracts and document citations presently in the ERIC collection could be undertaken. This collection includes both federally and nonfederally sponsored research efforts and is inclusive of the years 1955 to 1970.

---

[5] Webb, *et al.*, 1966.

For purposes of this investigation, the computer search of the ERIC document collection followed a systematic pattern of retrieving citations and abstracts according to ERIC Thesaurus index terms on subject area (*e.g.*, microteaching, teacher education, information systems); legislative authority or source of funding (*e.g.*, Title VII, Cooperative Research Act, Title II); date (1958 to 1960); and author.

## Data Analysis

Each document citation and its abstract, which was taken from the computer printout, were carefully read for content and then checked for a listing of its particular legislative authority. These facts were then used by the investigator to determine whether a particular document was or was not the result of NDEA, Title VII funding. Projects were viewed only from the standpoint of what they could tell about the general picture of federal funding under Title VII. No effort was made to judge whether a specific project deserved to be sustained by federal funds. Specific breakdowns on federal monetary expenditures for the various exemplars were not indicated since the investigator had no way of collecting such data.

When the investigator found himself in doubt as to the proper categorization for a document, efforts were made to contact and query the principal investigator for that particular piece of research or a key individual knowledgeable about the development of that particular media (*e.g.*, Dwight Allen and the Stanford Center for Research and Development on Teaching regarding microteaching, or Louis Forsdale and his associates on 8 mm film). As a last recourse, documents having no clear identifying legislative authority were placed in a separate category (projects for which the legislative authority could not be determined).

## Findings

The findings for the four ideational[6] exemplars--microteaching, dial access, flexible scheduling, and 8 mm single concept film--were described in detail in the Phase II report and are merely summarized here. The findings for the fifth exemplar, closed-circuit television, are presented here for the first time and thus are described in greater depth than the others.

---

[6]Refers to new ideas or approaches for instruction.

The ERIC search generated 117, 276, 87, 6, and 288 document citations and abstracts respectively for microteaching, dial access, flexible scheduling, 8 mm single concept film and closed circuit television.

Microteaching

Of the 117 document citations generated as the composite data set for microteaching and related descriptor terms (such as videotaping, teacher training, in-service and pre-service teacher education, teaching techniques, and training techniques), only ten proved to be the result of Title VII efforts, and these were of limited consequence to the central focus of the research on the microteaching technique. The remaining 107 microteaching citations are primarily the result of funding from the Cooperative Research Act (PL 88-210); PL 88-10, Title III-Supplementary Centers and Services; and the Language Development Act, PL 85-864, Title VI. The Cooperative Research Authority and PL 88-10, Title III, are cited most often as the largest and/or the principal source of federal funding. On this basis, these two legislative sources appear to be most directly responsible for the success of microteaching.

Key individuals in the development and research aspects of the microteaching concept--such as Robert Bush and Dwight Allen--have written that financial support first came from nonfederal monies, principally from the Ford and Kettering Foundations. Later financial assistance for research, development, and utilization was primarily federal. Including the two chief federal sources mentioned above, federal monies for the continued development and dissemination of findings on microteaching are cited as coming from the Education Professions Development Act and the Multi-State Teacher Education Project.

To date, the most fertile years in the development of microteaching have been 1965-1968. In 1967, federal funding for microteaching and related areas reached its maximum level with the funding of 46 research projects.

Dial Access

Dial access, in combination with such related descriptor terms as man machine systems, language laboratories, information systems, storage-retrieval, auto-instructional methods, and resource centers, generated 276 document citations. Only 21 of these document citations are attributed to Title VII. Qualitatively, these 21 documents appear to be of limited consequence to the central thrust of existing research of

dial access systems. One possible exception is "State of the Art of Dial Access Information Retrieval: Interim Report on Library Research," by Gabriel Ofiesh at Catholic University (1967).

Ofiesh's survey, along with a 1968 summary by Richard Naber, stands out as one of the most comprehensive statements in the small body of quality literature on dial access information retrieval systems (DAIRS). Ofiesh's survey recommends a computerized bank of information in specific areas of education, such as educational technology. He undoubtedly did not know that, at the time of his writing, the U. S. Office of Education was considering plans for the ERIC Clearinghouse system.

Dial access systems were first considered by Dr. F. Rand Morton when he was on the faculty of the University of California. With the support of representatives of the Bell Telephone Company, he developed preliminary plans for a prototype DAIRS. This support from the Bell Laboratories was indicative of a trend which followed and found commercial business firms such as Reeves Electronics Corporation of Los Angeles, Litton Industries, Ampex, and many others actively involved in the research, development, and installation of DAIRS.

The chief sources of federal funds for these undertakings have come from the Language Development Act, PL 85-864, Title IV (total of 59 ERIC documents to its credit); the Library Research and Development Authority, PL 89-320, Title II, Part B (51 ERIC documents); and the Cooperative Research Authority, PL 89-10, Title IV.

Flexible Scheduling

Flexible scheduling (FS) and its related descriptors retrieved 87 document citations and abstracts, but only three of these are attributed to NDEA, Title VII, efforts. Here again, the significance of these three documents to the overall development of this exemplar is minor.

Like microteaching, the innovative technique of flexible scheduling was developed in a university research setting. Most of the research, however, was undertaken in actual schools in the western part of the United States, which were experimenting with individualized instruction.

Initial financial support for experimentation with FS was furnished by the Fund for the Advancement of Education of the Ford Foundation. Later sources of funding were the

federal government under the Cooperative Research Act, PL 89-10, Title IV, and Language Development Act, PL 85-864, Title VI. From the standpoint of federal funding, FS appears to have reached an all-record high, as far as quantity of work is concerned, in 1967.

8 mm Film

The ERIC computer retrieved six document citations and abstracts concerning 8 mm film. None of these citations are categorized as the end-product of NDEA, Title VII funding. And on this basis, the conclusion is reached that NDEA, Title VII did not play a major role in the development of 8 mm film. However, a review of past efforts in 8 mm film implementation suggests that the NDEA's overall efforts in film development and research may well have established a climate for the later development of 8 mm film in education. Sleeman and Crosswhite support this assumption:

> "*Significant advancements in film for classroom use came largely as a result of federally sponsored research and development under the National Defense Education Act of 1958. After Congress extended the Act for two years, the investment in film for classroom use increased 10 to 15 percent. It was reported at the National Audiovisual Convention in mid-1961 that the federally sponsored research had resulted in a 30 percent increase in the sale of audiovisual equipment.*"[7]

The 8 mm film technique is not a relatively new medium, for as Louis Forsdale (1962), an early user of 8 mm in instruction, writes: "8 mm silent film has ... been known since its introduction by Eastman Kodak for amateur use in 1932." What was new in the 1960's was the commercial reality of recording sound on the narrow 8 mm film format and "refinements of film emulsions ... [which] made possible increasingly better images in all dimensions of motion pictures. The 8 mm film equipment itself was also considerably improved ... particularly in the crucial area of simplified projectors."

Developments such as these spurred the emergence of 8 mm film as one of the most important educational media of the 1960's.

---

[7]Sleeman and Crosswhite, 1968.

Industry was the first element of American society to respond to the advantages of 8 mm sound film. Such companies as the Ford Motor Company, the Do-All Manufacturing Company, and the Caterpillar Company began to make 8 mm films for use in their internal training and sales programs in the late 60's.

In terms of federal funding, the 8 mm film movement reached its greatest period of support in 1967 with the listing of three research projects in the ERIC collection for that year. Because of the small number of projects, no clearly-defined source of funding can be pinpointed. To date, Adult and Vocational Education, PL 88-210, has been responsible for federal support of 8 mm film. A review of the current issues of *Research in Education* suggests that the 8 mm film technique will continue to be an important area for media research and development, particularly because of its potential for instructing the culturally disadvantaged child via individualized instruction.

## Closed-Circuit Television

Whereas Title VII did not seem to provide much impetus to research and experimentation for any of the first four exemplars, it did apparently have a noticeable impact on the development of closed-circuit television (CCTV) for instructional purposes. The growth of CCTV has been steady and consistent since the early 1950's,[8] when Michigan State and a few other universities began experimenting with formal televised work.[9] By 1963, Campion and Kelley[10] pinpointed a total of 426 closed-circuit instructional television systems in the United States: 266 in institutions of higher education; 98 in elementary and secondary schools; 47 in medical installations; 31 in dental institutions; and 20 in military installations. Five years later, Wigren, Ingle and Molenda[11] poinpointed 717 of these installations, of which over half were in elementary schools and the remainder were divided among medical schools, military institutions, and colleges and universities.

---

[8]Campion and Kelley, 1963, p. 63.

[9]Murphy and Gross, 1966, p. 22.

[10]Campion and Kelley, 1963.

[11]Wigren, Ingle and Molenda, 1967.

The above achievements and proliferation of CCTV are attributed both to grants from private foundations and from government sources.[12] The Ford Foundation alone is cited as having made grants in the neighborhood of $100 million. However, this includes all phases of educational television as well as CCTV. Federal interest is first indicated with the National Defense Education Act of 1958. The Act, and its successive amendments, made close to $30 million available for research and demonstration projects.[13] (Also see Foundations and Media Chapter.)

In the field of research, it definitely can be said that Title VII of NDEA provided the main thrust in the study and investigation of effective ways of adapting not only closed-circuit television but educational television in general. This conclusion is the result of an examination of 288 document citations retrieved from the ERIC system.

Of the 288 document citations and abstracts retrieved, about one-half (131 documents) specifically were concerned with closed-circuit television, and the remaining 157 were related to television in general--that is, commercial and noncommercial open-circuit broadcasting. Of the 131 documents related to CCTV, 75 were funded by Title VII of the NDEA (37 under Part B and 38 under Part A); the remaining 56 documents are distributed among the Cooperative Research Act and miscellaneous legislative authorities (see Figure 1). Most of these documents are of minor consequence with respect to CCTV. Of the 157 documents generated for the broader ERIC descriptor "television," 88, or about two-thirds, were also funded by NDEA, Title VII. These latter citations were not individually studied in this report because the primary focus herein is on CCTV. However, they are mentioned in passing to further substantiate the conclusion that NDEA, Title VII, is largely responsible for most of the research and demonstration efforts in the field of instructional and educational television.[14] The CCTV citations and their abstracts are listed in the appendix of this report.

---

[12]Murphy and Gross, 1966, p. 11.

[13]*Ibid.*, p. 67.

[14]In general, the term "educational television" or ETV covers all noncommercial television. In usage, however, ETV is sometimes applied more narrowly to cultural and educational programs for at-home viewers in contrast to "instructional television" or ITV, which is a term used to describe formal school, college, or university instruction via television.

According to these documents, the most fertile years in the development of closed-circuit television were 1961 through 1963; a total of 41 documents were reported for this period. In 1961, federal funding for CCTV reached its maximum level with 16 documents being reported. This year was followed (as far as quantity is concerned) in 1963 with a total of 15 documents (see Figure 1).

Key individuals in the research aspects of CCTV included: Vernon Bronson, George Gropper, Wilbur Schramm, James Finn, and Arthur Lumsdaine.

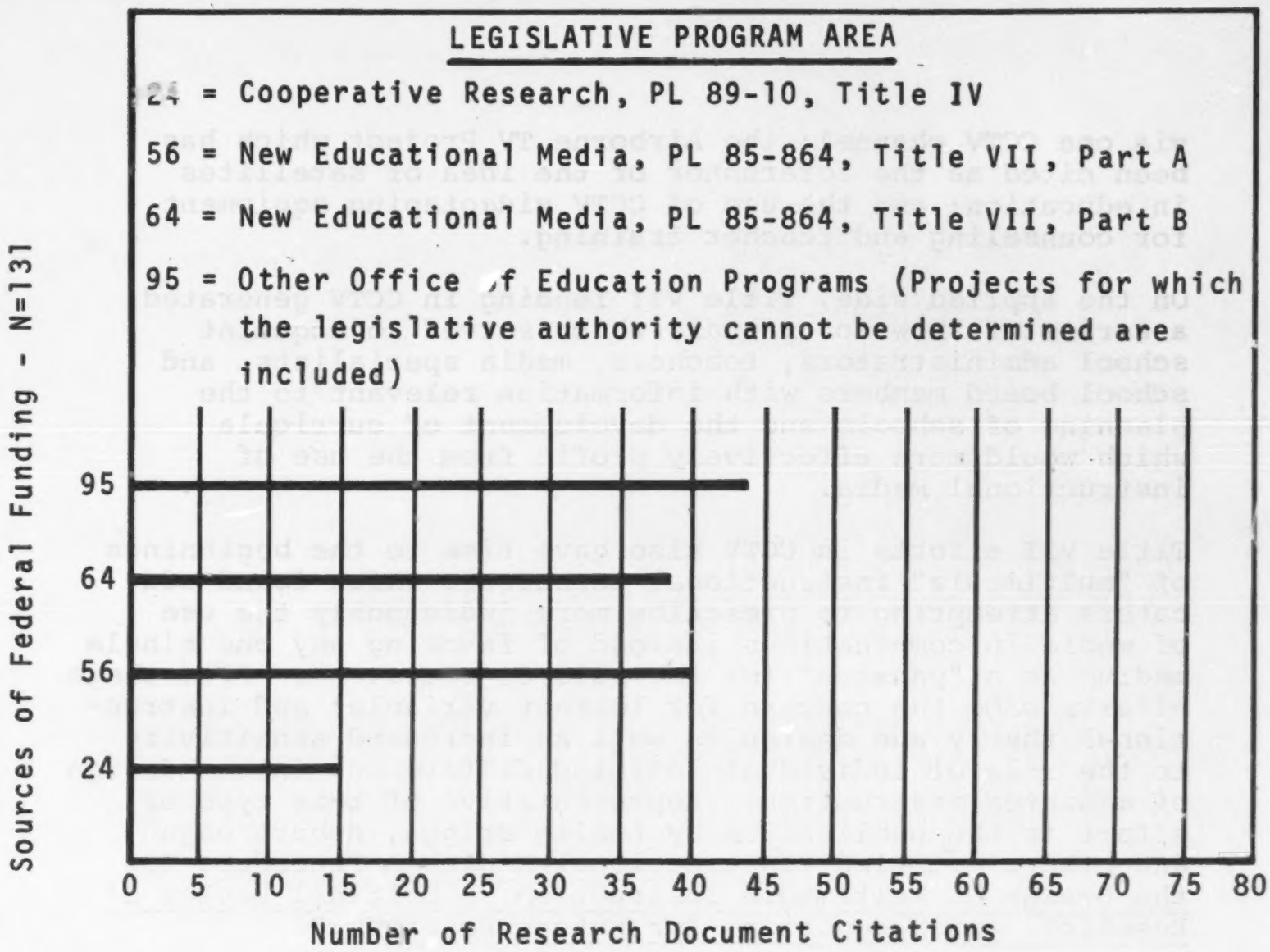
A review of the individual CCTV documents suggests four principal types of research: 1) case studies on the use of CCTV for certain purposes in either schools or universities; 2) surveys or state-of-the-art reports on the number of installations and/or equipment inventory and/or audience measurement; 3) feasibility studies on the utilization of CCTV by itself or in combination with other media such as programmed instruction; and 4) experimental studies primarily focusing on the measurement of "effectiveness" in learning from CCTV compared with conventional instruction as well as experimentation with control groups and the use of student response and feedback variables. Also, the effects of varying the length of ITV program sequences were studied.

Among the general areas of interest in which CCTV was being applied are teacher education, medicine, dentistry, general health sciences, foreign languages, counseling and vocational education, science education and "how-to" instruction on TV and related media utilization for teachers.

Title VII's role was significant on several accounts. First, unlike the previous exemplars investigated, in the case of CCTV both Part A and Part B of Title VII are equally represented in the number of research projects undertaken (respectively, 37 and 38 citations). This is indicative of the spirit of Title VII which sought not only to undertake relevant research but to disseminate worthwhile findings into the schools where more effective media utilization could take place. And "dissemination" indeed was evident with CCTV. The word was spread via conferences, workshops, publications and demonstration projects. Judging from the types of research and dissemination efforts which followed in later years, the strategies developed in these conferences were taken to heart and undoubtedly contributed to a more enlightened use of Title VII resources.

This period also saw the development of exemplary and new uses of CCTV--such as the TEMP project in central Texas joining 11 universities in the sharing of faculty resources

A


LEGISLATIVE PROGRAM AREA
24 = Cooperative Research, PL 89-10, Title IV
56 = New Educational Media, PL 85-864, Title VII, Part A
64 = New Educational Media, PL 85-864, Title VII, Part B
95 = Other Office of Education Programs (Projects for which the legislative authority cannot be determined are included)
Sources of Federal Funding - N=131
95
64
56
24
0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80
Number of Research Document Citations

B

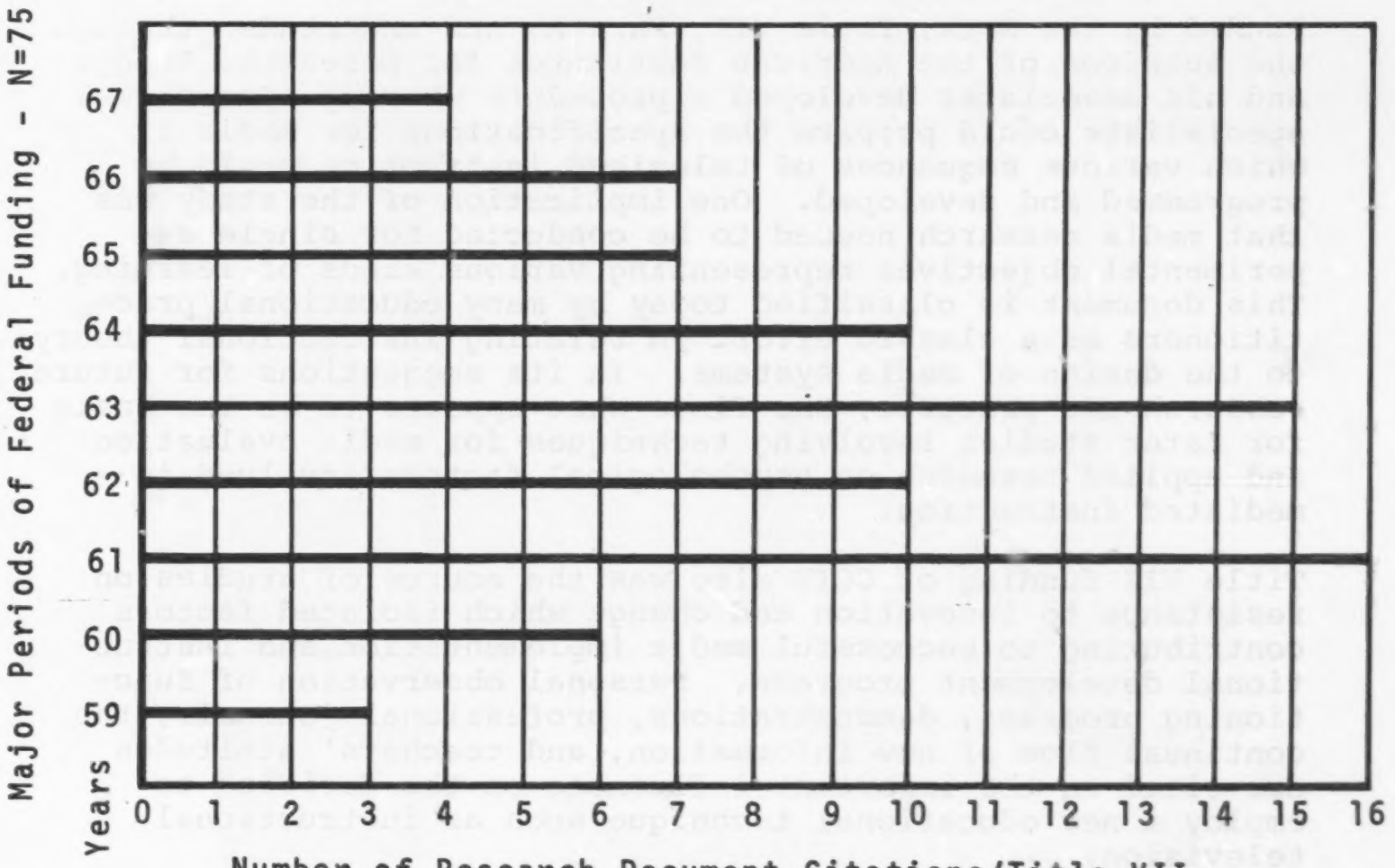



Fig.1. Growth and Development of Instructional CCTV

via one CCTV channel; the Airborne TV Project which has been cited as the forerunner of the idea of satellites in education; and the use of CCTV videotaping equipment for counseling and teacher training.

On the applied side, Title VII funding in CCTV generated a series of "how to" manuals which served to acquaint school administrators, teachers, media specialists, and school board members with information relevant to the planning of schools and the development of curricula which would more effectively profit from the use of instructional media.

Title VII efforts in CCTV also gave rise to the beginnings of "multimedia" instructional techniques which found educators attempting to prescribe more judiciously the use of media in combinations instead of favoring any one single medium as a "panacea" for the ills of education. From these efforts came the concern for learner variables and instructional theory and design,as well as increased sensitivity to the role of individual learning differences in the design of mediated instruction. Representative of this type of effort is the publication by Leslie Briggs, Robert Gagné and others entitled "Instructional Media--A Procedure for the Design of Multimedia Instruction, A Critical Review of Research, and Suggestions for Future Research."

Funded by the NDEA, Title VII, Part A, and undertaken through the auspices of the American Institutes for Research, Briggs and his associates developed a procedure whereby educational specialists could prepare the specifications for media in which various sequences of televised instruction would be programmed and developed. One implication of the study was that media research needed to be conducted for single experimental objectives representing various kinds of learning. This document is classified today by many educational practitioners as a classic effort in relating instructional theory to the design of media systems. In its suggestions for future research and practice, one finds what appears to be the basis for later studies involving techniques for media evaluation and applied research on psychological factors involved in mediated instruction.

Title VII funding of CCTV also was the source of studies on resistance to innovation and change which isolated factors contributing to successful media implementation and instructional development programs. Personal observation of functioning programs, demonstrations, professional journals, the continual flow of new information, and teachers' attitudes are cited as the important influences on the decision to employ a new educational technique such as instructional television.

Observation of a functioning program reinforced by the dissemination of information through professional journals appears to be especially useful for acquainting school personnel with innovations which require a radical change in classroom pedagogy; e.g., television, language laboratories and programmed instruction.

As for teachers' attitudes, experience reports on instructional television indicate, for the most part, that involvement and in-service training are key elements in making classroom teachers more receptive to instructional technology. If the teacher can have a part in planning what is taught via the new media and what classroom activities are built around it, and if he can be given help in learning his new role, he will like these new media better and use them better. The research, such as it is, backs up those conclusions.

## Conclusions

This investigation has come full circle and if the ERIC data sources herein investigated are correct, the conclusion is that Title VII of the NDEA played a very limited role in the research, development and/or dissemination efforts of either microteaching, flexible scheduling, dial access, or the educational use of the 8 mm film format, but did have a considerable effect on closed-circuit television.

Some exceptions and qualifying statements must accompany this conclusion in the case of the first four exemplars. These exceptions are primarily errors of omission. In such an instance, the individual project directors were forgetful and failed to specifically cite the source of legislative funding for their projects.

The fact that so many documents listed neither legislative funding authority nor date of publication may prove to be a limiting factor in the confidence and degree of generalization warranted by the findings of this investigation. It may well be that some documents in these categories are Title VII efforts, but without an indicated legislative authority, there is no systematic and objective way of conclusively ascertaining these important data. Even an inspection of a sample of the individual documents in question (taken from the ERIC microfiche file and hard copy library) proved to be of no avail. No specific legislative authority, or in many instances publication data, was cited other than the broad category of "U. S. Office of Education."

In addition, although Title VII appears not to have occupied center-stage in the development of the exemplars (micro-teaching, dial access and flexible scheduling), it may possibly have established a climate which then enabled the growth of the fourth exemplar (8 mm film). This situation points to what might be a developing trend in research and development efforts in education.

The findings of this investigation suggest that a mixture of funding sources were at play in the development of each exemplar--be they foundation, the private sector, industry, and/or the federal government. And although not indicated by the data base, state and local financial support must also have entered along the way. In the case of each of these exemplars, no one single source of funding emerges as primarily responsible for their development. In all cases, there was a multitude of sources. For this reason, it must be recognized that even though the total ten-year federal appropriation of $40.5 million for the NDEA Title VII appears large in an absolute sense, it constitutes a mere one-eighth of one percent of the national expenditure in education.

In the area of CCTV, Title VII research and dissemination efforts over the ten-year period apparently enabled media research and utilization to progress from unsophisticated attempts to prove that television could teach as well as or better than traditional classroom approaches, to a more mature understanding of the specific resistances to instructional technology and various administrative and psychological factors which impede the design of a more effective means of instruction.

The review of Title VII efforts in CCTV suggests that the promoters of educational change must continue to demonstrate the efficacy of proposed innovations. Their task, thus, is in the domain of communication and dissemination. This does not imply that the sole source of difficulty is in the area of communication, but rather that the variety of problems in the introduction and utilization of educational technology appears to begin with the communication process and, as such, urgently needs to be more adequately understood.

## THE FOUNDATIONS AND MEDIA

Before the NDEA was passed, representatives of the various philanthropic foundations testified before Congress in support of Title VII. There is good reason to believe that their testimony was influential in the inclusion of Title VII in the final version of the Act--if only because the work of the foundations prior to 1958 demonstrated the feasibility and suggested the potential of media. After the Act was passed, the foundations continued to support research and experimentation with media for educational use, and it was felt that a comparison of expenditures in this area with the Title VII funding might provide a frame of reference by which to judge Title VII expenditures.

Eight foundations were selected for a preliminary analysis: the Ford Foundation, the Alfred J. Sloan Foundation, the Charles F. Kettering Foundation, the Carnegie Corporation, the Rockefeller Foundation, the Kellogg Foundation, the Danforth Foundation, and the Esso Education Foundation. Of these, the first six were found to have supported the development and application of media in education between the years 1958-1968. In addition, the annual reports of Ford and Carnegie were checked for 1953-1957; these foundations supported media and education during those years also. The annual reports of the Danforth Foundation mention no specific projects in support of media; Esso also cited no specific projects in this area, with the exception of an unspecified amount of support given to the Midwest Program on Airborne Television Instruction in 1962.

The review of the annual reports of the above foundations indicates funding priorities; however, it must be remembered that any actual dollar totals given in this chapter represent the minimum that the foundations could have contributed to media research and development from 1958 through 1968. Many projects of a more general nature that the foundations supported did not specifically claim to support educational media, but may in fact have done so. In these cases, it was impossible to estimate what might have been expended, for instance, in a subsection of a curriculum revision project concerned with media problems or applications.

Television as an educational medium received by far the most attention. (In the early years of the time period, educational radio was frequently included in the television projects.) The bulk of the support was provided by the Ford Foundation, although the Sloan Foundation, the Carnegie

Corporation, the Rockefeller Foundation and the Kellogg Foundation supported or contributed to several projects. Virtually all of the media projects supported by the Rockefeller Foundation were in the area of educational television, as were approximately half of the media projects supported by Kellogg. The total support given to television over the ten-year period is in the neighborhood of $138 million. The heaviest funding activity took place before 1966, and the level of expenditure had dropped off considerably by 1968.

In contrast, the total funding for television from Title VII during the same time period was approximately $9.4 million. Between 1958-1968, when $9.4 million were spent on television, $4.8 million were spent on programmed instruction, for example, and $6.1 million on other media that included computers, and new solutions to implementing instructional media. The total Title VII funding for instructional media during the ten years was approximately $40.5 million--far less, in other words, than that spent by the foundations on television alone. Figure 1 compares the approximate expenditures by the foundations for different kinds of media.

Much of the funding continuously was channeled to educational television programs or networks. For example, the National Educational Television network received continuous support, as did Radio Center and the Continental Classroom series presented on NBC. Certain large efforts were aided, such as the TV-Radio Workshop which produced educational and experimental TV and radio programs, or the National Program in the Use of Television in the Public Schools. In addition, large-scale funds were provided over many years, such as for the Fund for the Advancement of Education, that itself made substantial contributions to educational television and other media.

On a smaller scale, television projects were supported that investigated the use of televised instruction or television as a means of augmenting classroom instruction. Closed-circuit television was studied in this regard. Ford also supported research into making televised instruction more available to schools in remote, rural areas.

In general, the support to television was directed toward actual, ongoing efforts (such as the educational networks), but a fair portion also focused on research and experimentation. A recent example of this is the 1968 support by Ford and Carnegie for research in the Children't Television Workshop. Moreover, some evaluation studies of the effectiveness of television as an instructional medium were undertaken.

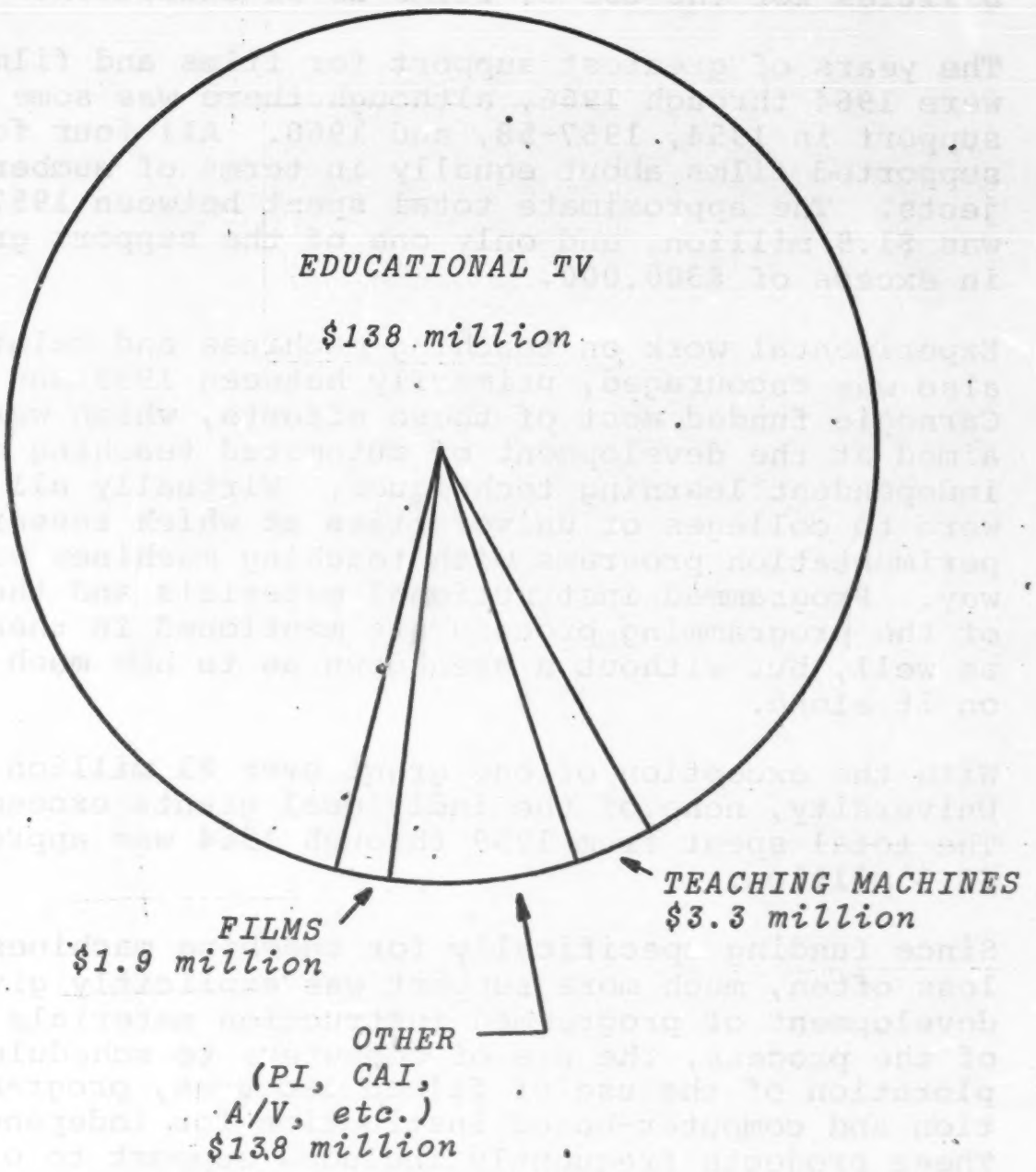



Fig. 1. Approximate funds expended by foundations during 1958-1968 for media.

Films and film-making also received some attention, but were overshadowed by the support given to television. Most of the projects were devoted to the support of the actual production and to use of films as instructional material. The films were used both in school classrooms and in teacher training programs. In addition, a few efforts were directed toward research into new possibilities for the use of films as an educational medium.

The years of greatest support for films and film-making were 1964 through 1966, although there was some noticeable support in 1954, 1957-58, and 1960. All four foundations supported films about equally in terms of numbers of projects. The approximate total spent between 1957 and 1968 was $1.9 million, and only one of the support grants was in excess of $300,000.

Experimental work on teaching machines and related research also was encouraged, primarily between 1959 and 1964. Carnegie funded most of these efforts, which were basically aimed at the development of automated teaching devices and independent learning techniques. Virtually all of the grants were to colleges or universities at which research and experimentation programs with teaching machines were under way. Programmed instructional materials and the development of the programming process are mentioned in these projects as well, but without a breakdown as to how much was spent on it alone.

With the exception of one grant over $1 million to Stanford University, none of the individual grants exceeded $300,000. The total spent from 1959 through 1964 was approximately $3.3 million.

Since funding specifically for teaching machines occurred less often, much more support was explicitly given to the development of programmed instruction materials and application of the process, the use of computers to schedule classes, exploration of the use of filmed lectures, programmed instruction and computer-based instruction for independent study. These projects frequently included support to other instructional innovations such as microteaching (as identified in the "origin of microteaching" in the Phase II report), videotapes, or the use of audiovisual materials. No breakdown was given as to which of these received the most financial support. Moreover, there is some overlap here with the support given specifically to TV and films, since studies of the use of films or television were often included in the projects to examine programmed learning or computer assisted learning.

The Kettering, Carnegie and Ford Foundations were the supporters of these efforts. An approximate total of $13 millions was spent on these technologies, and the years of greatest support were 1965, 1966, and 1967. In addition, some indirect support for these instructional technologies came through the Ford-supported Fund for the Advancement of Education.

In general, the Ford Foundation was the most generous of the supporters, as well as the most constant--some level of activity was provided every year from 1953 through 1968.[1] The Carnegie Corporation provided funds continuously from 1959, whereas the Sloan Foundation ceased to support educational media research or application in 1966-1968, and the Kettering Foundation made no contributions, as best can be determined, in 1968. The Rockefeller Foundation provided some support every year between 1962 and 1968, except 1964. The biggest years were 1965, 1966, and 1967, and less was spent in 1968 than any other year except 1964 (for which no figures or projects were listed). Much of the Kellogg support was continuous over the years; it is difficult to assess whether their level of spending had dropped by 1968. Table 1 shows the approximate levels of expenditures by year for five foundations.

To summarize, educational television benefited the most from the support of the large foundations, although the level of funding had dropped by 1968. This pattern resembled in some respect the priority given to television under Title VII, where over 25 percent of the ten-year expenditures were for television efforts.[2] Other new instructional technologies received assistance, primarily for research or experimentation, and of these, particular attention was paid to teaching machines and programmed instruction, followed by computer-assisted instruction, videotapes, audiovisual aids, and microteaching. The production and use of educational films was also undertaken, primarily between 1964 and 1966. As was the case with funding for educational television, the level of support for these other efforts was down by 1968.

---

[1] cf Murphy and Gross, *Learning by Television*, which summarizes Ford Foundation activities in instructional television. Data regarding yearly expenditures for Ford's expenditures for instructional television supplied by Miss Claire List, Assistant Programs Officer via personal communications, January 27, 1970.

[2] *See p. 36, Phase I report.*

TABLE 1

APPROXIMATE EXPENDITURES FOR MEDIA PROJECTS[1]
by FIVE MAJOR FOUNDATIONS

1958 - 1968

| Fiscal Year | FORD | SLOAN | KETTERING[2] | CARNEGIE | ROCKEFELLER |
|---|---|---|---|---|---|
| 1958 | $ 2,910,155 | $100,000 [57-58] | $ -- | $ none | |
| 1959 | 10,282,615 | 100,000 [59-60] | -- | 75,000 | |
| 1960 | 9,284,868 | | -- | 251,700 | |
| 1961 | 10,661,551 | none [61-62] | -- | 750,000 | |
| 1962 | 19,626,746 | | -- | 446,000 | $200,000 |
| 1963 | 16,507,215 | no figure given [63-64] | -- | 1,050,000[3] | 15,000 |
| 1964 | 7,056,510 | | 400,490 | 490,665 | -- |
| 1965 | 7,100,000 | 530,000 | 192,771 | 295,500 | 250,000 |
| 1966 | 16,334,000 | none | 255,952 | 340,000 | 250,000 |
| 1967 | 21,205,420 | none | 80,591 | 440,000 | 425,000 |
| 1968 | 12,420,336[4] | none | none | 1,321,900[5] | 11,000 |

1. No figures are given in annual sums for the Kellogg Foundation for the years 1958-1968. No breakdowns by projects were available for the Esso Foundation for the years 1958-1968.
2. For 1958-1963, Kettering supported development of "scientific equipment," "science teaching center and Educational Services, Inc.," but no specifics were given. It cannot be assumed this support includes work on media projects.
3. This entire amount was given to Stanford University for an automated laboratory for research on teaching and learning.
4. The data reported for the Ford Foundation reflect primarily expenditures for open broadcast Educational Television. For instance, through June of 1966, approximately 81 million dollars had been expended in this area. In contrast, from 1962 to 1968 only 1.1 million dollars had been spent for instructional media/non television.
5. Of this total, $1 million was given to the Children's Television Workshop, which received approximately the same amount of Title VII monies. Ford Foundation monies were also provided for this project in 1968 in the amount of $250,000.

## SURVEY OF MEMBERS OF THE ADVISORY COMMITTEE ON NEW EDUCATIONAL MEDIA

Part C of Title VII of the National Defense Education Act established an Advisory Committee on New Educational Media in the Office of Education.[1]

The three major phases in the history of the committee were directly related to the major phases in the life of the program which might be categorized as follows:

> 1958 to 1962. A period in which the program received rather strong support. This period found the committee concentrating on the actual evaluation and rating of proposals.
>
> 1962 to 1965. Significant changes took place in both the Office of Education's administrative structure and the patterns of legislation affecting the various media programs. The strength of the committee declined both in numbers and in influence with the reorganization of 1965, leaving the committee with somewhat less than a clear mandate.
>
> 1965 to 1968. A period wherein the resources of the program and committee were directed toward a policy-recommending role for media activities.

It is against such a backdrop that this survey of the activities of the Advisory Committee members must be viewed. The objective of the survey was to provide additional data and insights for this project's recommendations.

The legislation required that individuals representing five specific professional categories be appointed to the committee. These included: (I) three individuals identified with science, liberal arts, or foreign languages in institutions of higher education; (II) three actually engaged in the supervision of teaching in elementary and secondary schools; (III) three with demonstrated ability in the utilization or adaptation of media for educational purposes; (IV) three

---

[1] Committee on Labor and Public Welfare, United States Senate, *The National Defense Education Act of 1958: A Summary and Analysis of the Act*. Washington, D. C.: United States Government Printing Office, September 5, 1968.

members of the lay public with demonstrated interest in the problems of communication media; and (V) a representative of the National Science Foundation.

Procedures

In early November 1969, members of the statutory Advisory Committee on New Educational Media all received a letter which solicited their comments about the committee and their service thereon.

The purpose of the letter was to obtain information which would assist in evaluating the strengths and weaknesses of the administrative procedures required by the legislation governing Title VII of the National Defense Education Act.

A letter, rather than a questionnaire, was employed to allow the committee members to express a full range of attitudes and to solicit responses to specifics which were of clearest recollection to the members. Also, it was hoped that by avoiding a questionnaire the percentage of responses could be increased. These Advisory Committee members were provided with an explanation for the request, an information bulletin summarizing the purpose and provisions of Title VII and a statement reviewing the purpose, membership, and procedure of the committee.

The mailed materials were prepared and signed by Miss Harriet Miller, a former member of the Advisory Committee. A copy of the distributed materials is found in the Appendix.

Letters were mailed to the 54 former members listed in Table 1 and 28 responses were received. (Two of the former members had died, and one could not be located.) Five of the responses were brief acknowledgments indicating that the writer felt he could not be helpful. Table 2 shows the distribution of responses in each category and time period.

The remaining 23 responses ranged from a short, general commentary to several pages of detailed statements. The longest and most detailed responses were, for the most part, from people appointed earlier but serving on the committee through the fall of 1965. It was helpful to also have received detailed comments from the NSF participants because they provided a "cross-agency" perspective.

TABLE 1

ADVISORY COMMITTEE ON NEW EDUCATIONAL MEDIA

| | *Category* |
|---|---|
| Abramson, Marion P. | IV |
| *Bailey, Thomas D. | II |
| Bennet, Lerone | IV |
| Bennington, Neville L. | II |
| Birkmaier, Emma | I |
| Bomar, Cora P. | III |
| *Bowers, Nancy | IV |
| Brace, Clayton H. | IV |
| *Carpenter, C Ray | III |
| *Carroll, John B. | III |
| Caudill, William | III |
| Codwell, John E. | II |
| Cowan, Louis | III |
| *Culkin, Reverend John | III |
| *Davison, W. Phillip | IV |
| Dees, Bowen C. | V |
| Divizia, Margaret | II |
| *Dolce, Carl | II |
| Dunn, Reverend Hugh E. | I |
| *Fletcher, C. Scott | III |
| Foncannon, Howard | V |
| *Gagne, Robert | III |
| Gardner, John W. | IV |
| Goldstein, J. Richard | IV |
| Golterman, Elizabeth | II |
| *Grant, William | IV |
| Gross, Calvin | II |
| *Hazard, Leland | IV |
| *Hovde, Frederick | I |
| *Hull, Richard B. | III |
| *Hunter, Armand | I |
| *Kelly, Harry C. | V |
| *Kelson, Keith | V |
| Knox, Sarah H. | II |
| Larson, Lawrence C. | III |
| Lewis, Philip | II III |
| *MacLean, Malcolm | III |
| *Meadows, Austin R. | II |
| Meierhenry, Wesley C. | III |
| McGill, Ralph E. | IV |
| *Miller, Harriet | II |
| *Mitchell, Wanda B. | II |
| Nabrit, Samuel L. | I |
| *Nostrand, Howard Lee | I |
| Ofiesh, Gabriel | III |
| *Reinert, Reverend Paul | I |
| *Roe, Arthur | V |
| Saudek, Robert E. | III |
| *Schramm, Wilbur | III |
| *Seaborg, Glenn T. | I |
| *Skornia, Harry J. | III |
| Slavin, Reverend Robt. | III |
| *Spaulding, William E. | IV |
| Wittcoff, Raymond | IV |
| *Zacharias, Jerrold | I |

*Those who responded to the Advisory Committee letter of inquiry.

I - Higher Education: Content

II - Supervision: Elementary and Secondary

III - Media

IV - Lay Public

V - NSF

TABLE 2

DISTRIBUTION OF RESPONSES BY TIME PERIOD AND CATEGORY

| | 58-59-60 | 60-61-62 | 63-64-65 | 66-67-68 |
|---|---|---|---|---|
| I Higher Education (science, liberal arts, language) | \| \|* | \| \| \| \|* | \| | \| |
| II Teaching or Supervision in Elementary and Secondary Schools | \|*\|* | \| | \| | \| |
| III Media in Education Personnel | \|*\|* | \|*\|*\|* | \| | \| \| \|* |
| IV Representatives of the Lay Public | \|* | \|* | \| | \| |
| V NSF | \| | \|* | | \|* |

*Contributors of detailed letters.

It was anticipated that the latitude afforded by the letter technique would produce a wide variety of responses. This proved to be the case; consequently, it was not possible to tabulate specific comments under precise headings or to make statistical evaluations.

The committee members expressed reactions which were basically relevant to one or another aspect of the work of the Advisory Committee, although stated in a variety of ways. For this reason, the aspect rather than the content of the comment alone was used in analyzing the responses.

Four principal aspects were identified: the concept of the Advisory Committee, its role, its functioning, and its contribution. These four aspects are described in greater detail below, and a few individual comments from committee members are included.

Responses Pertaining to Four Principal Aspects of the Advisory Committee

1. The concept of the Advisory Committee as an administrative device with emphasis on its composition, including technically-knowledgeable members and lay members.

   Four members expressed great satisfaction with this aspect of the committee; three others were emphatic about what they felt were deficiencies in the membership; others felt the idea was sound but had "gone aground."

   *"...the Title VII Advisory Committee performed very well in its assignment in spite of the different types of individuals and professional interests involved. In fact, I would say that the 'spread' in this committee was an asset to its function and assignment..."*

   *"Personally, I think a citizens' committee with 'teeth' is a very healthy thing...I felt constituency of the original committee was first rate and the fact that a number of highly intelligent people, concerned with communications but not experts per se in this field were included, had a great deal to commend. Judgments were based on a larger perspective, were less parochial than are often found in a panel composed entirely of media professionals."*

   *"..there was possibly one flaw in the structure, namely that there was no explicit provision for including individuals on the committee with sufficient expertise in research techniques and possibilities to evaluate properly the reports of the field readers..."*

2. The role of the Advisory Committee primarily as a body with limited and specific powers (largely concerned with approval of activities resulting in the commitment of funds), rather than as a body empowered to guide the Title VII effort along broad policy lines.

Three members reacted favorably to the committee's role; nine were concerned about the successfulness of its activities. Eight of the concerned members were among those who served on the committee after 1960-62.

> *"I think the committee participation during my term of duty was more substantial than procedural. We were indeed--particularly at the outset--faced with almost more substantive participation than we could handle in terms of reviewing proposals, etc., before the staff group had come to full complement..."*
>
> *"At the meetings themselves, I sensed confusion as to the distinction between the type of technical work which should properly have been accomplished by the staff and the evaluative non-technical assistance that could be expected from an Advisory Committee."*
>
> *"...Committee members were trying to give advice on policies and the general shape of the OE program. We were not satisfied at all on that score; first, because it was very difficult to get anything but details or specific grant recommendations on the agenda and, second, because we saw little evidence that advice on program policy had any appreciable effect."*

3. The functioning of the Advisory Committee, including staff competency and committee-staff relationships.

   Twelve members commented favorably about the functioning of the committee; six indicated lack of satisfaction. The majority of the responses came from members who served on the committee before 1965.

   > *"I think it is one of the best government-organized committees on which I have served. The staff support was better than the staff support which committee members received from other committees both within and out of the government...*
   >
   > *"The staff support was always excellent, but I felt they were always understaffed..."*

4. The contribution of the Advisory Committee to the effort expressed by the enactment of Title VII.

Indications of members' opinions about the contribution of the Advisory Committee in general are drawn from comments primarily relating to other subjects. Favorable reactions outweigh unfavorable reactions, but it is hazardous to generalize or to draw broad conclusions from the comments made.

> *"The committee did perform a valuable service by objectively evaluating the applications and by receiving information from the USOE staff and disseminating it among the groups we represented."*
>
> *"Unfortunately, there is no way of determining to what extent, if at all, those research projects which the committee endorsed and which were financed by the Office have contributed to the improvement of education or even the more effective use of new media."*
>
> *"I have no question that the time and expense involved in funding this committee was well worthwhile. As I suggested earlier, this new way of viewing the media, as a cluster or a continuum of interrelated devices to be employed for educational purposes, was uniquely helpful in stimulating their wider use, in enabling people to think purposefully about employing (not whether to use radio or television or film, but which ones to use, singly, or in what combinations) the whole range of media as an integral part of the instructional process."*

Individual Comments

Some of the comments by the responding committee members, while not easily classified, are useful in providing additional information about aspects of the Title VII program and its administration. A number of these comments follow.

> *"I think that any feeling of doubt as to the nature of the service the committee was rendering resulted from an almost shocking lack of real merit in the research projects we were asked to appraise. I am sure that the committee did its best to support only those applications which seemed worthy. It was,*

*however, very seldom that I had any confidence that the research project was worth what it was costing the taxpayers. I do wish...that the policy or authority of the Office of Education might be such as to permit them to appoint an Advisory Committee which could help encourage research in specific areas in which they felt that research was needed, and which could say something about the nature of that research without running into the hoary basic/applied research controversy."*

*"The weakest link in the entire Title VII program was in the dissemination of research findings in the research completed, but valuable efforts were made to report the findings. I hope that this part of the program can be revived and reports of worthwhile research findings can be reviewed and reported to state education departments and institutions of higher learning."*

*"...my recommendation would be, in this case specifically for the benefit of USOE and HEW, that they should follow this organizational structure and operation as closely as possible for future committees studying a variety of subjects."*

*"...Advisory Committees should...require a greater commitment of time and energy from its members."*

Subjective Analysis of the Relative Weight of the Responses with Respect to Four Principal Aspects

Figures 1 through 4 show subjective ratings of the responses for each of the four principal aspects described above. Respondents are encoded by number. Roman numerals refer to the category of membership (I through V); Arabic numbers bear an approximate relationship to the time period of service, the earlier appointed members being represented by the lower numbers. On a scale of minus ten to plus ten, zero represents a neutral position (or the position of a member whose responses were contradictory); minus ten represents a thoroughly negative or unfavorable response; and plus ten represents a thoroughly positive or favorable response. It should be understood that the analysis is necessarily a subjective interpretation of the responses and that the figures do not represent an effort at exact measurement but are merely guides for visual reference.

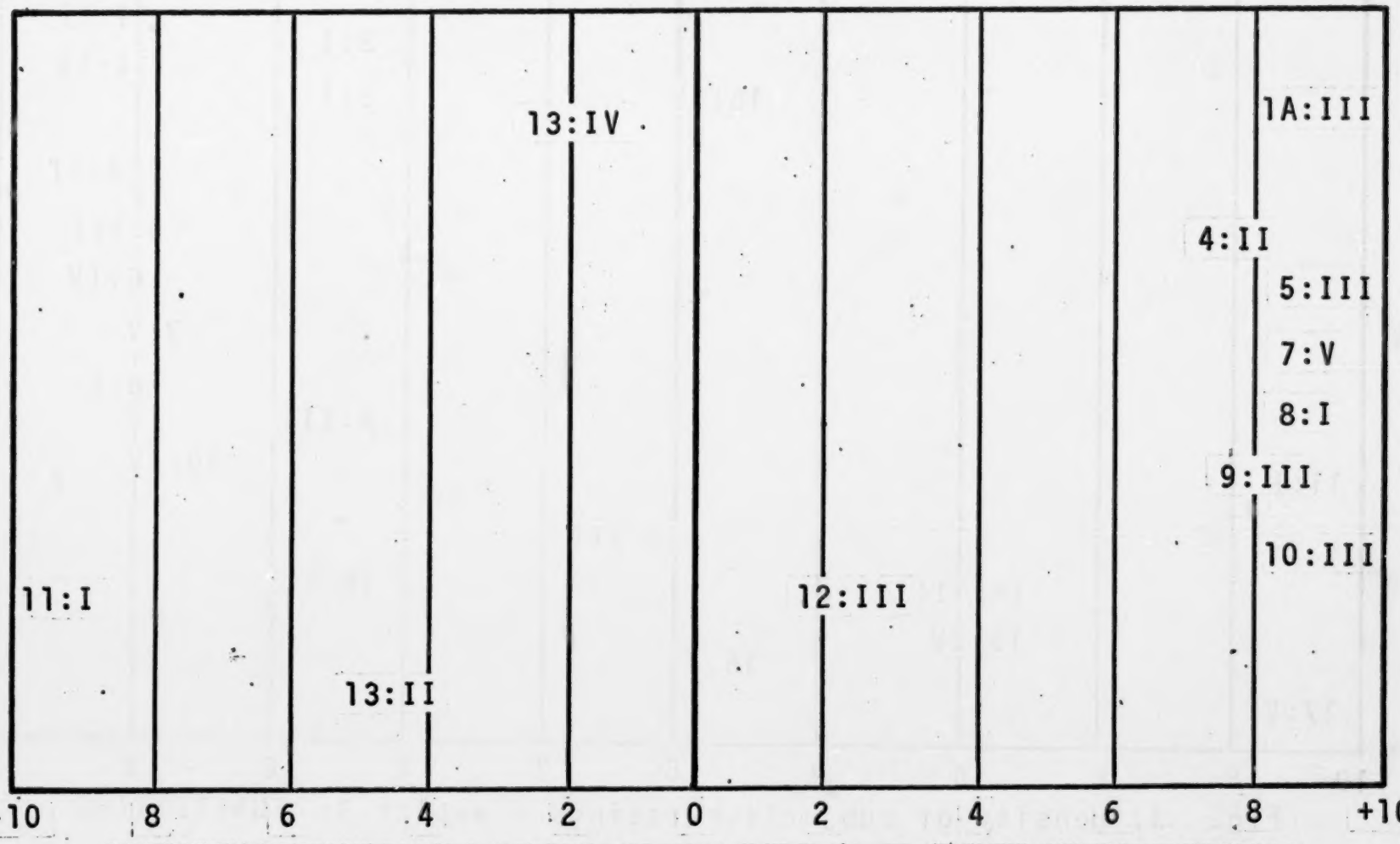



Fig. 1. Density of subjective ratings - aspect 1: CONCEPT

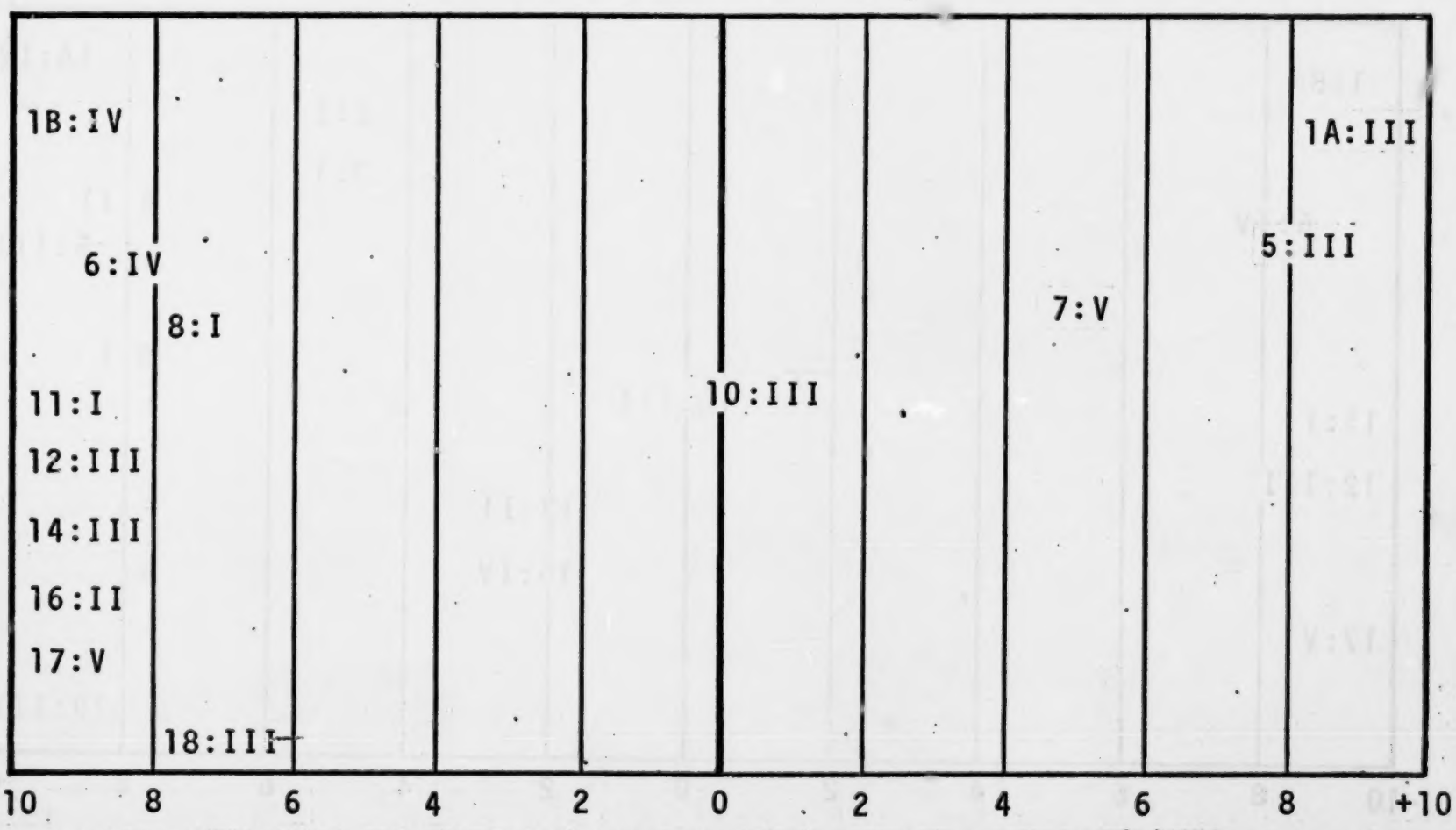



Fig. 2. Density of subjective ratings - aspect 2: ROLE

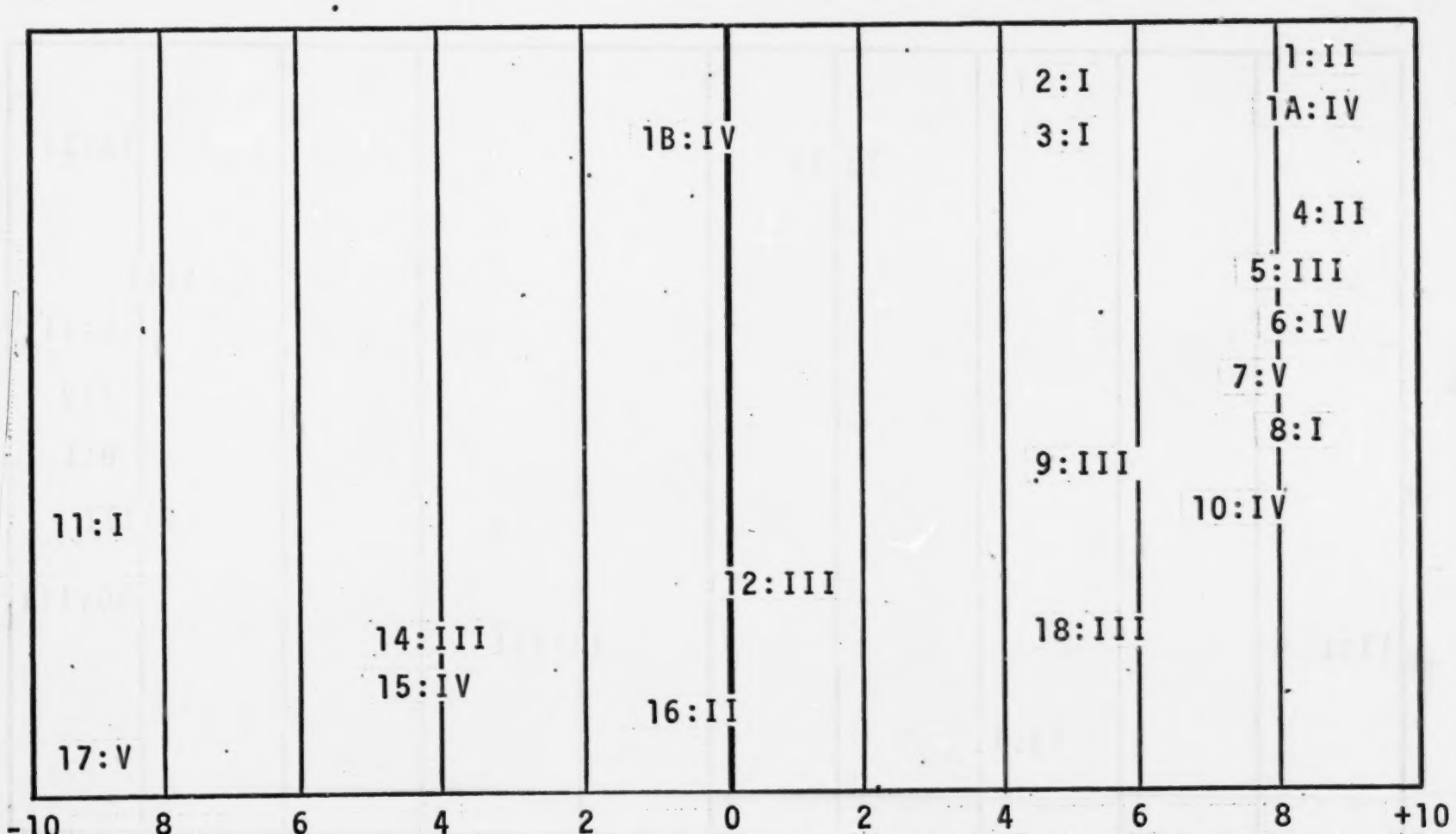



Fig. 3. Density of subjective ratings - aspect 3: FUNCTIONING

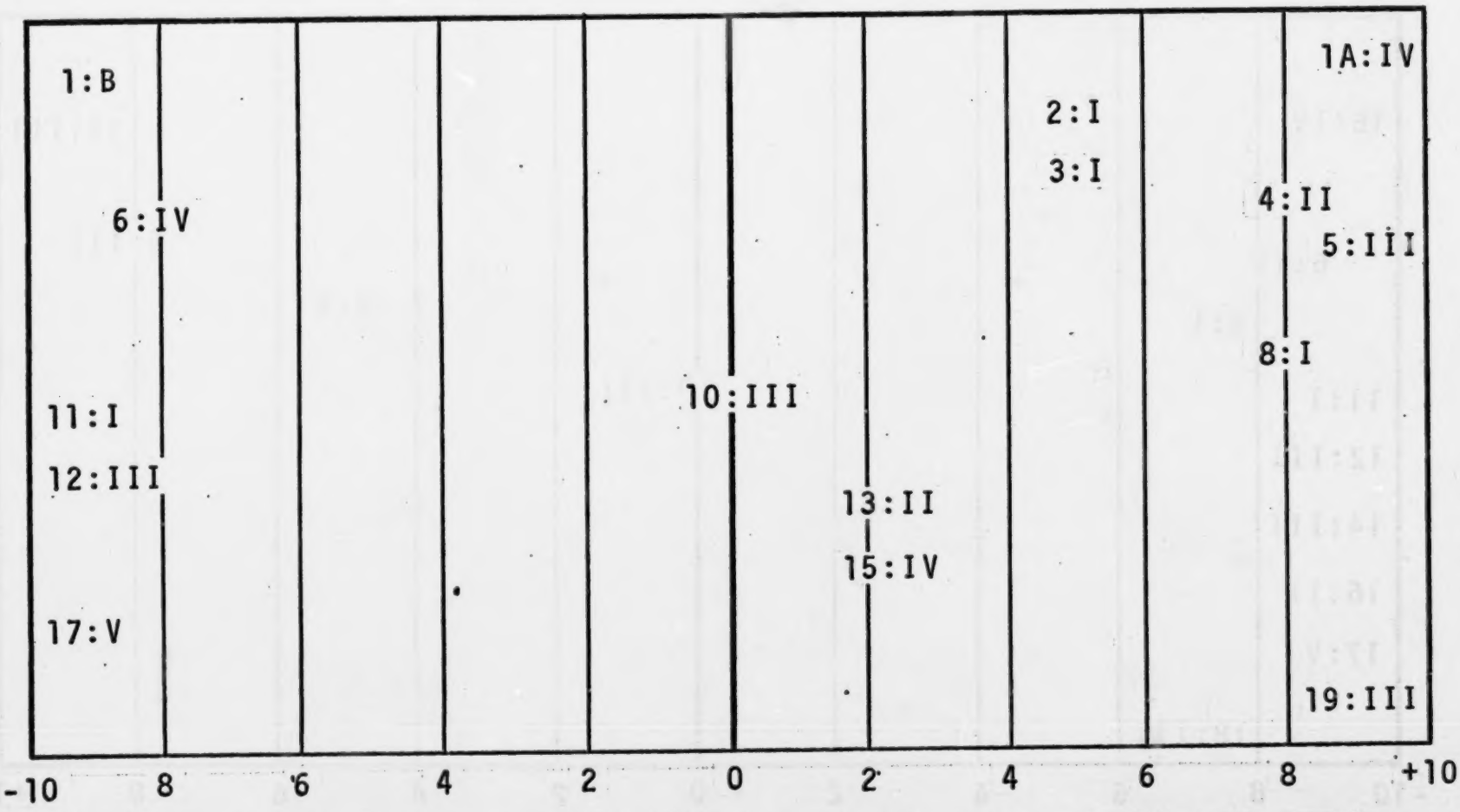



Fig. 4. Density of subjective ratings - aspect 4: CONTRIBUTION

Observations Based Upon the "Plots"

Any attempt to generalize from the four plottings would be difficult but "conclusions" for some aspects, as perceived by Advisory Committee members, might be suggested. For instance:

1. The concept of the Advisory Committee as an administrative device was perceived as basically worthwhile by the majority of those who responded to this question.

2. The role of the committee as it operated seemed to be "inappropriate" to many of the respondents.

3. Over two-thirds of the sample expressed positive opinions about the overall functioning of the committee, including staff support.

4. The contribution that the committee made to the overall execution of the program was viewed as positive.

5. It is difficult to identify positive or negative impressions for any of the four aspects by categories (I,II,III,IV, or V), due to the lack of any consistent response pattern by the members representing each group.

Observations Based Upon the Respondents' Comments

The responses of the Advisory Committee members ranged from heartily positive to devastatingly negative. In general, the comments reflect a willingness to assist with the survey. The more thoughtful responses were frequently the more detailed, and often emphasized particular aspects of the committee and its work, as well as providing critical or constructive suggestions. The more complimentary responses were usually expressed in one-to three-paragraph replies.

The concept of a multi-faceted committee was considered to be sound, but to have encountered difficulties when the committee members were asked to deal with very detailed and technical dimensions of proposals. Personnel from categories I, II, IV and V could not have been expected to participate or to feel comfortable participating in technical areas.

Some respondents felt that more time should have been spent dealing with larger policy matters and less time with the review and evaluation of proposals. The option was available in the legislation. The imbalance seemed to be of conern to the respondents. However, during the early years of the program, the staff obviously needed to have the committee review many proposals.

With the advent in 1960 of the Educational Media Study Panel to deal with policy, it appeared that the committee could then have played a broad, rather than a narrow, role. However, only three respondents (all from category III), who served after the establishment of the Study Panel even acknowledged its existence and role.

The staff support was viewed as having maintained a high standard throughout the life of the program. Some respondents felt, with respect to the progress reports on Title VII-B activities, that the staff was attempting sometimes to bypass the committee. However, the legislation did not require the committee to review in detail the Part B proposals. To some, the frequent rotation of staff members seemed to cause concern in relation to guidance and continuity while others felt that such a committee should meet more than twice a year to provide any services of value to the U. S. Office of Education.

Some concern was expressed about the value of the research being supported, the merit of the proposals evaluated, or the effective dissemination of the results. Two respondents felt that additional members with knowledge of research would have helped to better accomplish the committee's tasks. Perhaps a "wild card" member might have been provided in the legislation, thus enabling the Commissioner to add to the committee a person who could meet the needs of the moment throughout the changing life of the program.

Finally, the committee members felt that overall, they had made a valuable contribution toward executing the intent of the Title VII legislation.

## PROJECT DIRECTORS' QUESTIONNAIRE ANALYSIS

Individual projects funded under Title VII were of considerable interest to over 440 individual project directors, as indicated by their responses to a mail questionnaire which was developed to solicit information from this group. The questionnaire was designed to obtain information in the following areas:

1. The initial and current degree of involvement in media research on the part of each director;
2. Accomplishment of project objectives as perceived by the directors;
3. Administrative efficiency of the Title VII program in comparison to programs conducted by other agencies within USOE;
4. Quality and levels of communication and dissemination of Title VII activities, projects, and products;
5. Suggestions for improvements in the management and dissemination of research programs of this nature.

## FIELD TEST OF THE QUESTIONNAIRE

### Procedures

The mail questionnaire was based upon a series of interviews with former project directors. These interviews were undertaken for two reasons: (1) to field test the preliminary version of the interview instrument and, (2) to obtain background data, relevant documents, and ideas from the former directors. It was also anticipated that the interviews would initially provide a means for disseminating information regarding the purposes of this study.

The field test version of the interview guide was tested with two former project directors in the Los Angeles area prior to review by the IED project advisory committee. Suggestions gained from this field test were incorporated prior to interviews with 26 project directors at the Department of Audio-Visual Instruction (DAVI) meeting in Portland, Oregon, held in March, 1969.

Invitations for interviews were sent to 75 Title VII, Part A, project directors. Initially, groupings were devised according to the number of projects in which the directors participated and such factors as subject level (elementary, secondary, and college).

In the case of Part A directors, attention was given to the section of Title VII [(1) Development, (2) Teacher Training, or (3) Presentation of Academic Subject Matter] on which the project was focused.

Fifty-six directors indicated an interest in discussing their role in Title VII but only 18 stated that they would attend the DAVI Convention in Portland. Due to this relatively small sample, another eight project directors, who had not been contacted earlier, were also asked to participate in the Portland interviews.

The interview form included questions about the professional histories of the directors, their Title VII projects, and their general views of Title VII.

It was realized, of course, that the DAVI group constituted a rather special sample and that little could be generalized from their attitudes and answers. The fact that they were present at DAVI gave some indication of their continued interest and involvement in media-related activities and evidence of their relative prominence in the field.

Thirty-one former directors were interviewed, of whom 16 had conducted Title A and 15, Title B projects. Their median age was 47, all but one held a doctorate, and the average involvement in media-related activities collectively spanned the 10 years of the program. This group seemed to have had considerable involvement in Title VII as shown by the facts that members of this group had directed an average of two projects each. All but one of them felt that he was still actively involved in the field of educational media.

Survey Sample Compilation

Four hundred and forty finalized questionnaires were next mailed to former Title VII directors in the fall of 1969, with the 31 directors involved in the field test excluded from the sample, Each director was asked to answer general questions about the Title VII program and some specific questions about a designated project (A or B) which he had directed. The instrument and total responses to each item can be found on page A38 of the Appendix.

Returns were received from 224 directors. If such factors as type, funding, year started, and year completed are examined, no noticeable differences appear between respondents and non-respondents. (See Tables 1 and 2 on following page.) Respondents are named on page A53 of the Appendix.

## AN OVERVIEW OF THE SURVEY

### Characteristics of Respondents

A majority of the respondents held Doctorates of Philosophy or Education and had been active in media-related activities for more than 15 years, although their involvement in the media field for the most part was light or nonexistent prior to Title VII. The directors had concentrated in various specialities prior to Title VII, with emphasis on psychology, administration, and teaching.

Since being involved with Title VII projects, most of the directors have spent 50 percent or more of their time in media activities. A 30 percent increase in involvement with media was primarily attributed to their Title VII projects.

### Formal Commitment to Projects

A majority of those replying spent at least half of their time with the Title VII projects and felt that they had fully accomplished their objectives. Of the objectives not carried out, most could be classified under the following headings: (1) research results not clear cut; (2) application of project outcomes limited; and (3) limited development of academic material for more than one level. Reasons given for these objectives not being reached were primarily poor planning, design or time limitations, and inadequate funds.

### Measurement

Most of the projects did attempt to assess changes in student, teacher, and administrative behavior and attitudes concurrent with media applications. Criteria used for evaluation of impact were almost equally divided between objective and subjective measures. Of the materials developed as a part of the program, most were self-instructional materials, courses of study or curriculum guides. For the most part, these materials are available for examination at a repository, or from the project director.

TABLE 1

TITLE VII PROJECT DIRECTORS

| Amount of Monies Received | | | Project Type | | |
|---|---|---|---|---|---|
| Thousands of Dollars | Respondents | Non-Respondents | | Respondents | Non-Respondents |
| 1-10 | 63 | 55 | | | |
| 11-20 | 25 | 26 | A | 141 | 105 |
| 21-40 | 40 | 35 | | | |
| 41-50 | 12 | 11 | B | 83 | 88 |
| 51-100 | 44 | 29 | | | |
| 101-500 | 39 | 35 | N = | 224 | 193 |
| 501-600 | 0 | 0 | | | |
| 601-700 | 0 | 0 | | | |
| 701-999 | 0 | 0 | | | |
| 1000 + | 1 | 2 | | | |
| N = | 224* | 193 | | | |

TABLE 2

TITLE VII PROJECT DIRECTORS

| Year Project Started | | | Year Project Ended | | |
|---|---|---|---|---|---|
| | Respondents | Non-Respondents | | Respondents | Non Respondents |
| 1958 | 0 | 0 | | 0 | 0 |
| 1959 | 30 | 30 | | 3 | 2 |
| 1960 | 35 | 23 | | 9 | 13 |
| 1961 | 26 | 25 | | 26 | 33 |
| 1962 | 17 | 17 | | 42 | 25 |
| 1963 | 27 | 18 | | 18 | 20 |
| 1964 | 14 | 23 | | 27 | 18 |
| 1965 | 35 | 23 | | 30 | 16 |
| 1966 | 24 | 19 | | 21 | 18 |
| 1967 | 11 | 9 | | 28 | 33 |
| 1968 | 5 | 6 | | 16 | 9 |
| 1969 | 0 | 0 | | 4 | 6 |
| N = | 224* | 193 | N = | 224 | 193 |

*N actually totaled 229; however, five returns were unusable.

## Overall Project Management

Although most of the respondents received their information about the Title VII research and dissemination program through colleagues, they judged their access to information about the proposal opportunities as being as good as,or better than,information access open to other researchers. Most felt that the opportunity to discuss possible proposals was either usually or always available.

A majority of the project directors had previous experience with other federal agencies, and of these, most felt that Title VII had been administered as well as, or better than, other federal agency relationships. Strong points in the administration of the program were considered to be the guidelines for submitting proposals, communications with the USOE staff, and the congeniality of the staff. Weaknesses cited were the delays in appropriating and funding the projects, vague or indecisive policy decisions, and modification of objectives, staffing, time tables, or evaluation procedures.

In comparison to other Office of Education research programs, a majority of directors felt that the Title VII program was administered as well as, or better than, other programs.

## Dissemination of Findings

Dissemination of the findings and results of the projects were not primarily conducted through television, films, and radio. Most of the projects did disseminate information about the project. DAVI and AERA conventions were frequently used for dissemination, as were national agencies, colleges, and universities. Journals most often used for dissemination were AVCR and Audiovisual Instruction. In most cases, copies of the final reports, published by the various project directors, may be obtained from ERIC Clearinghouses or from the Title VII repository. Some, however, may be obtained directly from the project director. In most cases, from 100 to 400 copies of each study report were printed.

A majority of the Part A project directors felt that results of their Title VII research were not being translated into classroom practice. Reasons frequently given for this were (1) the material is difficult to obtain or not available, (2) the material is still experimental, and (3) the results have not been properly disseminated. A small majority of the Part B directors also felt that effects of their research did not have a significant impact on the classroom.

The overall impression of all of the project directors indicated that positive aspects of Title VII activities outweighed any negative factors, and that they would gladly become involved with the program again. A detailed analysis of the administrative, management, and dissemination efforts is provided in Chapter XII.

Chi Square ($X^2$) Analyses

A number of $X^2$ analyses were conducted to ascertain relationships, if any, between various items in the questionnaire.

The questions that provided some degree of relationships were the following:

- *Did perception of access to information about Title VII proposal opportunities in comparison to other researchers relate to the total number of research projects conducted, years of experience in the field, opportunities to discuss proposals, or whether the individual had conducted an A or B project?*

  The total number of projects, the years of experience in the media field, and in particular the number of Part A projects conducted appeared to bear a relationship to a positive perception of information availability. These relationships were significant at the .05, .10, and .10 levels respectively.

- *If project directors thought the opportunities to discuss possible proposals were usually or always available had they also felt that their access to general information was as good as or better than that of other researchers?*

  Yes, at the .001 level of significance.

- *When comparing their Title VII experience with their relationships with other federal agencies, did high ratings for Title VII relate to years of experience in the media field, Part A or Part B projects conducted, total number of projects conducted, or information about proposal opportunities?*

  The Section B project directors perceived the overall administration, in comparison to other agencies, somewhat more favorably (significant

at the .10 level) than did Section A directors. (However, it should be noted that a number of project directors held both types of projects.) Those with more years of media experience also provided a higher rating (.05 level of significance).

- *If project directors felt they had accomplished their individual project objectives fully or fairly well, did they tend to rank the Title VII administration better than, or as well as, other federal agencies?*

  Yes, better than, or as well as, at the .05 level of significance.

- *Did project directors rate Title VII administration as better when contrasted to other USOE activities if examined in terms of the factors of: years of experience in the media field; total number of projects involved; and whether these were A or B projects.*

  Those directors who had four or more projects during the 10-year life of Title VII tended to rate the Title VII administration higher (.05 significance level). Relationships based upon the other factors did not appear to emerge.

- *Did the overall impression of Title VII activities differ among the project directors who had varying years of media experience, Part A or Part B projects, total number of projects, or perception of Title VII in regard to programs in other agencies?*

  These factors did not emerge separately as being critical to the highly favorable impression that most directors had of the Title VII activities.

## ADMINISTRATIVE AND MANAGEMENT ANALYSIS

This chapter provides administrative and management recommendations for future programs with objectives comparable to Title VII of the National Defense Education Act. Recommendations based on Title VII experience may be only partially applicable to current or newly proposed USOE programs dealing with media or other areas of education.

In certain instances, new practices and policies, suggested in this report, have already been implemented in the Office of Education. The time, staff and funds were not available, however, to examine all USOE modifications to administrative practices during this particular project.

Each reader, therefore, must view the recommendations in relation to his own needs, management practices, and policies. If the report helps to reinforce certain attitudes and behavior or suggests new approaches, or cause the reexamination of ignored practices, this assessment will have served its purpose.

### An Intersect or Overlap Theory of Impact and Assessment

An individual's perception of an activity, over time, leads him to make generalizations about the nature and character of a program. In the case of Title VII, numerous groups interacted with the program. Each, like the three blind men viewing portions of the elephant, could see or engage in aspects that were related to their specific needs or assignment. Consequently, each individual could base his judgments on only a partial sample of the whole.

As a result, categories of respondents had different impressions of the program. For example, the USOE Media Branch staff had one set of opinions; the mandated Advisory Committee had others. The collection of information pertaining to the recommendations provided in this report was designed to utilize an intersect or overlap theory of impact and operations assessment.

As the impressions of each group were synthesized and analyzed, there emerged an overlapping of perceptions or opinions, a congruence in remarks and recommendations. Patterns and "themes" occurred which no single response could legitmize, but which properly could be accepted when they recurred in the reactions or assessments in more than one category of respondents (i. e., project directors, Advisory Committee).

Certain of the themes can be supported with "hard" data; others cannot. No ordering of hard data could provide substantiation as to what occurred or with what degree of importance it should be credited.

Because of needing to deal with apparently variant and conflicting inputs, the study made extensive use of an "intersect theory of analysis" approach in an effort to approximate "objective reality." Using such analysis the areas of overlap (or intersect) are purposively searched out and serve as focal points for analysis. When faced with a variety of opinions, this may be the soundest approach to use.

To put the intersect or overlap theory into operation, information was obtained from:

224 Title VII Project Directors

19 USOE personnel who administered the program in the Media Branch

6 USOE Deputy and Commissioners of Education, Bureau of Research Chiefs

28 Title VII Advisory Committee Members

9 Advisory Committee Members and Senior Consultants

(A few personnel may have served in two or more of the above categories)

Minutes of the Title VII Advisory Committee Meetings

Figure 1 attempts to provide a schematic which reflects the intersect or overlap theory in its simplest form.

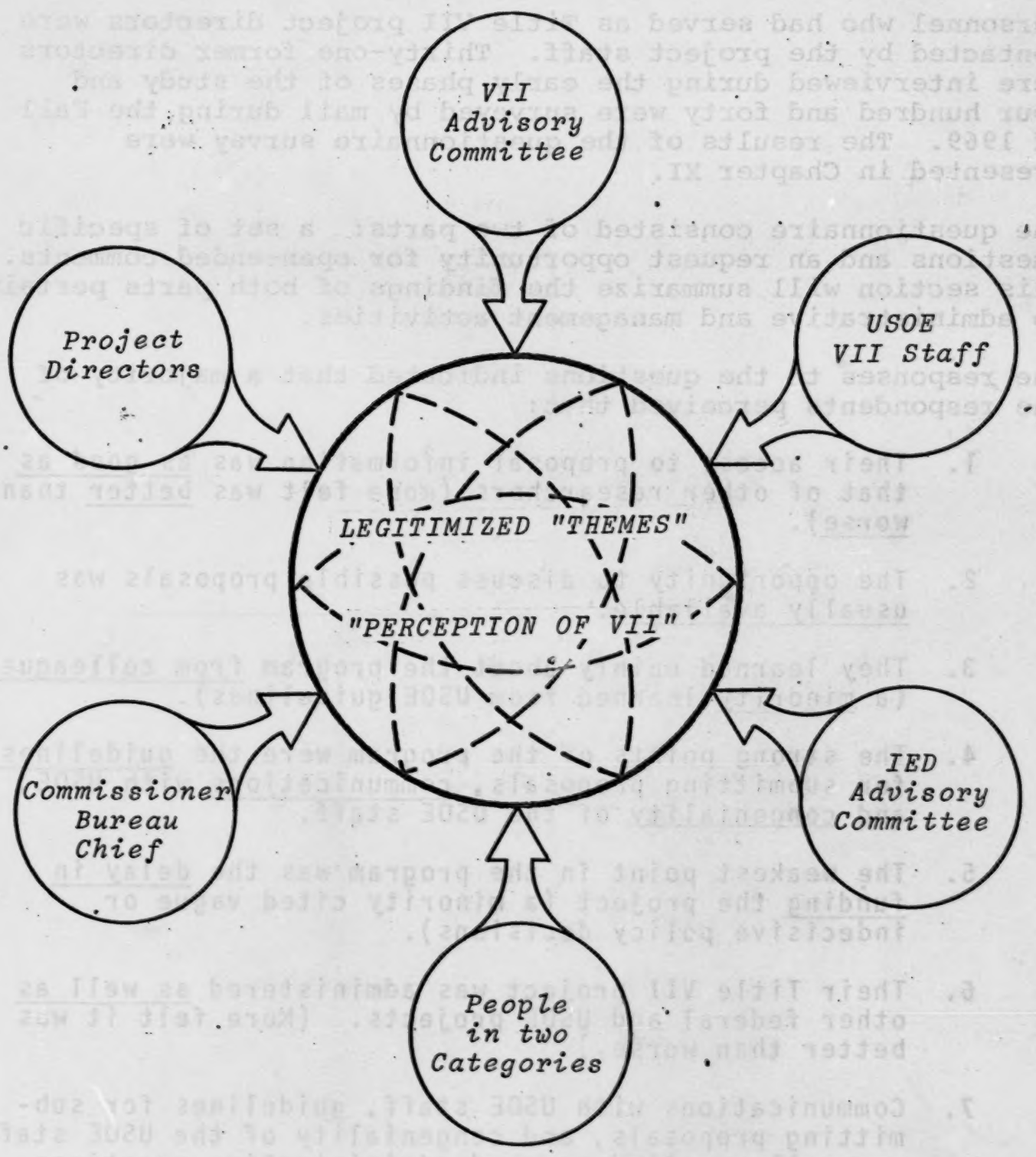



Fig. 1. A Schematic of the Intersect or Overlap Theory

## Information Obtained from the Project Director's Questionnaire

Personnel who had served as Title VII project directors were contacted by the project staff. Thirty-one former directors were interviewed during the early phases of the study and four hundred and forty were surveyed by mail during the Fall of 1969. The results of the questionnaire survey were presented in Chapter XI.

The questionnaire consisted of two parts: a set of specific questions and an request opportunity for open-ended comments. This section will summarize the findings of both parts pertaining to administrative and management activities.

The responses to the questions indicated that a majority of the respondents perceived that:

1. Their access to proposal information was as good as that of other researchers (more felt was better than worse).

2. The opportunity to discuss possible proposals was usually available.

3. They learned mainly about the program from colleagues (a minority learned from USOE guidelines).

4. The strong points of the program were the guidelines for submitting proposals, communications with USOE, and congeniality of the USOE staff.

5. The weakest point in the program was the delay in funding the project (a minority cited vague or indecisive policy decisions).

6. Their Title VII project was administered as well as other federal and USOE projects. (More felt it was better than worse.)

7. Communications with USOE staff, guidelines for submitting proposals, and congeniality of the USOE staff were all recalled as good administrative practices. (Proposal review procedures were remembered with less favor.)

8. The most difficult situations mentioned by the directors in their relationship with Title VII personnel included:

   delays in receiving appropriations and funding,

   budget cuts for ongoing project,

   vague or indecisive policy decisions, and

   midstream modification of objectives and evaluation procedures.

9. Less than half of the project directors felt that their Title VII, Part A research had been translated into classroom practice.

10. Sixty percent felt the positive elements outweighed any negative factor and they would gladly participate in further similarly-funded research.

    More than one quarter of the project directors felt that the Title VII activities had equally good and bad points but in general contributed to improved media use.

    Ten percent indicated a small portion of the program had merit but the value of the activities in terms of cost was open to question.

    Ten percent indicated that the planning and implementation were of a poor quality.

Responses to questionnaire items dealing with administrative and management questions, as well as responses to the entire questionnaire, are provided in Appendix A-38.

Out of 199 respondents, 63.3% thought that their findings and results were well disseminated. On the average 100 to 400 copies of each project report were printed. Many of those who felt that their results were not well disseminated provided comments in the open-ended section of the questionnaire. When Title VII, Part A directors were asked if their research outcomes had been translated into classroom practice, 59.4% answered that the results had not.

## Project Directors' Open-Ended Comments

In addition to the structured questions about administration and management, the project directors were also asked to answer two open-ended questions in this area:

- Question 1

  What specific suggestions would you make for strengthening management practices of programs such as Title VII?

The responses to this question were grouped as follows:

*Longevity and Continuity of Staff*

A major problem seemed to be the constant turnover and lack of continuity among OE staff members.

*Communication Between Project Personnel and OE Staff*

Many project directors would have liked closer communication between personnel and the OE staff. On-site visits and closer liaison with OE staff members would have been helpful to assure that the activity was valuable and useful to both, and to help in understanding and solving problems as they arose.

*Flexible OE Stuff - Desired Characteristics of Staff*

A staff that was not only more knowledgeable in the media field, but that was also well organized and managed would have been desirable.

*Proposal Processing Time Table and Fiscal Procedures*

Delays in funding decisions, either approving or rejecting, were troublesome.

*Dissemination of Findings*

Some respondents felt that the methods for disseminating information about the projects were inadequate.

## Overall Approach to Carrying Out the Program

Both a programmatic approach to funding and relating research to immediate school needs were emphasized by the directors in connection with the overall approach to the program.

- Question 2

  The administration and effectiveness of ten years of Title VII research and dissemination could have been improved most by:

The responses to this question were grouped as follows:

### *Theoretical Context for the Program*

Although difficult to analyze, comments on the theoretical context of the program seemed to stress improved knowledge of the educational setting in which the medium was to be used and a clearer concept and definition of educational media.

### *Planning and Follow-Through*

More systematic planning, establishment of long-range priorities, and incorporation of the outcomes of past Title VII projects, were desired.

### *Staff Continuity and Management*

The lack of continuity and direction among the OE staff was *cited* (for the most part not by the same people who had commented earlier on the problem).

### *Creative Dissemination of Results*

A number of people felt that the program might have had greater impact if the "fruits" of the projects had been disseminated in specific ways. Translating research findings into "practical and useful" methods and practices seemed to rank high on the list. It was suggested that an R&D center in media research be established to support expanded research and dissemination. In a related sense some researchers commented on the lack of communication and coordination among projects.

## Interviews With USOE Staff

Both personal and telephone interviews were held with staff members responsible for administering Title VII during its ten-year life. In addition, information was also solicited and obtained from Bureau of Research heads and those who held positions of Deputy Commissioner or Commissioner from 1958-1968. A list of the personnel interviewed is provided on page 153.

The individual interviews suggested categories for the development of a formal interview instrument. This questionnaire was then sent to respondents before the telephone interviews. The questionnaire is reproduced in the appendix of this report. (see Page A 60)

Summary responses to various questions asked in both personal and telephone interviews are reported below:

*Adequacy of the Legislation*

- The legislation originally was written to provide an adequate base and realistic parameters for the development of new techniques in education. If the bill had a shortcoming, it was in having dimensions which were too broad and in lacking the less than precise definition of "media."

- Categorical aid was helpful but it also tended to encourage the development of a particular lobby, the media manufacturer. In retrospect, however, although media provided the entry point, the total program carried out broad research and dissemination reaching into most areas of education. Categorical aid did serve to "protect" the funds and permitted a "media thrust" to develop.

- When introducing innovative ideas or approaches, a categorical specification can be useful. This allows the approach or idea the opportunity of getting a foothold. In the case of Title VII, the 1958 legislation permitted enough flexiblity so that "variations on the theme of media use" could be explored at many levels.

- The legislation did not really speak to the equipment acquisition problem. Any restrictions that were imposed arose from general regulations and the limitations suggested by the Advisory Committee. ESEA equipment titles took up any slack that may have existed in Title VII specifications.

- Fortunately, sufficient funds were available to support the program because there was adequate interest in, and impetus behind, the available good ideas. This would not be the case today due to the greater number of "good ideas" and the growth of the media field.

- The legislative objectives as written were rather successful. Research was realistically pursued, educators' awareness of media was enhanced, and media use was expanded, thus acting as an important agent for change.

*Organizational Considerations*

- The general reaction of former staff members was that the media branch was located about as high in the organizational hierarchy as possible. As a categorical program, its location in the Bureau of Research was fortunate. However, an improved position on the organizational chart might have helped during competitions for research monies with such offices as that of Cooperative Research.

- The reorganizations that took place within the Office of Education during the life of Title VII tended to be viewed as disruptive to program continuity and to inhibit sound goal-setting behavior on the part of the staff and the guiding public.

- The 1965 reorganization had a crippling effect just at the time when the "fruits" from earlier years of the program were being harvested and could have provided instructive guidance for future program and project planning within the original Title VII structure.

- Title VII was perceived by the staff to have a slightly lower priority than other programs within the office, but when viewed from the Commissioner's level, it was considered to be about as elevated as it could be, given the amount and level of

funding, categorical nature, etc. Overall support from above was thought to be good but the staff members indicated that a more positive support from the Deputy Commissioner would have been of value.

- The informal, internal communications mechanisms that connected the Title VII office with agents of media activities within the office seemed to be good. Formal mechanisms, including the reorganizations directed toward facilitating formal interactions of related groups, never seemed to work very effectively.

*Administration of the Program*

- The general consensus was that more staff was needed to carry out the full-scale program. Specific areas, such as adding personnel, were suggested, including the inclusion of a contracts officer who could deal with legal and fiscal personnel, more people with expertise in the legal field, and someone to handle information dissemination, on a continuing basis.

- Personnel at the office level of the bureau and the Commissioner believed the program was administerd very well and in some instances more creatively than other branches within the Office of Education.

- One of the most innovative administrative decisions within Title VII, in the later stages of the program, was the linking of library research, training, dissemination systems (ERIC), and Part B in the same division.

- The clustering of all media activities within one office initially may have been self-defeating since the idea was to spread media over many levels. Currently, however, it would help if all media throughout the USOE were coordinated and funded through one office to avoid further duplication of effort.

*Available Monies*

- Opinions of the staff seemed to be that there was enough monies to support all of the "good" proposals that were submitted, but that more monies could have been used for the operation of the total program.

*Advisory Committee's Role*

- The Advisory Committee was viewed by the office staff as being of little help as well as inappropriate. The only areas that were considered of minimal value were certain dialogues with the committee and their assistance in the political realm. More freedom in appointment of personnel with educational research and media expertise would have been helpful.
- Those members receiving more than one vote for "most valuable Advisory Committee member" included J. Carroll, R. C. Carpenter, Ralph McGill, and Wilbur Schramm. Those mentioned at least once included Margaret Devizia, Scottie Fletcher, Leland Hazard, and A. B. Vandemeer.

*Field Readers*

- The field readers, who performed primarily for Part "A" of the program, were remembered as "valuable," "irreplaceable," "playing a very important role," extending "the political base of the program" and helping to "speed up the selection procedures."
- The majority of those interviewed felt the task and personnel of the field reader group could not have been effectively replicated within the office. A minority expressed the opinion that with enough staff the requirement for field readers could have been minimized.

*Dissemination*

- Little consensus existed regarding the best and least effective means for disseminating information about the program or its products. Most agreed that the funds, staff, and the time available for this facet of the program was limited.

*Projects With the Greatest Impact*

- The USOE staff suggested a number of projects to be included in the category of those "with the greatest impact." The most important projects mentioned included: Texas Microwave Network, plans for R&D centers and regional laboratories, ERIC planning projects, National Instructional Television, and the programmed instruction studies as a group.

- Although individual projects were considered to be important, it was also felt that the effect of the ten-year program must be viewed as a totality. Much of the program's output is only just now surfacing.

*Suggestions for Future Programs of This Type by USOE Staff*

- More staff should be provided to monitor contracts, perform fiscal and legal processing, and provide expertise in media use and equipment. Perhaps a separate bureau or division should be created for media.
- Funding levels should be designed to keep pace with the growth of a field once it takes off. This was not done within Title VII but was done for related programs.
- The program should be conducted in a far more systematic way with greater coordination between the Part A and Part B programs.
- The authority for decisions as to project funding should rest with personnel who are responsible for conducting the program.
- Better feedback mechanisms should be developed between the staff and the people in the field.

USOE TITLE VII STAFF CONTACTED

BRODERICK, Gertrude (P) (T)
BRIGHT, R. Louis (T)
CLEMENS, Tom (P)
EDLING, Jack (T)
GORDON, Roger (T)
GUEDRY, Perry (T)
HALL, Roy (T)
KOEING, Adolph (L) (W)
MCKEE, Guy (T)
MCKEEGAN, Hugh (T)
MCPHERSON, James (P) (T)
MEANEY, John (T)
MOLNAR, A. (L)
NORBERG, Kenneth (P)
SIEBERT, Warren (W)
SPAULDING, Seth (W)
STONE, C. Walter (T)
TORKELSON, Gerald (P) (T)
VANDERMEER, A. W. (P) (T)

USOE COMMISSIONER - DEPUTY, BUREAU CHIEF LEVEL

BRIGHT, R. Louis (T)
DERTHICK, Lawrence (T)
FLYNT, Ralph (P) (T)
HOWE, Harold (W)
KEPPEL, Francis (W)
MCMURRIN, Sterling (T)

T = Telephone interview
P = Personal interview
W = Written response to questionnaire
L = Project liaison, Project Advisory Committee

## Administrative and Management Recommendations Based on a Review of the Title VII Advisory Committee Minutes

The minutes of the Title VII Advisory Committee during the ten-year period provide many insights into the concerns of the committee. In all, 23 meetings were held. Three of these meetings were devoted to the organization and clarification of the committee's prior recommendations. For example, at the Joint Meeting of the Advisory Committee and the New Educational Media Study Section on January 26-27, 1967, many general policy recommendations and suggestions for research were presented. Little attention was given to administrative or procedural areas. The meetings held on January 11-12, 1968, and May 9-10, 1968, were similar.

Thus, because so much effort was devoted to summarizing and organizing at these meetings, the discussion below will not review these three meetings, but concentrate instead on the earlier meetings, at which procedural and administrative issues were debated.

The following information and materials are taken from minutes of the Advisory Committee over the ten-year period. A few general areas can be grouped to provide some idea of the committee's concerns during the program. These include:

- General Directions of Research
- Evaluation Process
- Internal Committee Functions
- Dissemination
- Small Grants
- Reorganization

### *General Directions of Research*

- From the beginning of the program, "research and experimentation" were intended to cover a wide range of research techniques. Basic, developmental research for increasing and adding needed knowledge in the communications field was recognized, along with applied research, where the primary interest was in applying available knowledge, and action research, designed to complement the uses of the media for improved instruction.

*Evaluation Process*

- Operating within the established framework, the Advisory Committee's activities often seemed highly procedural due to a concern with mechanical operating matters such as length of proposals, terminations, resubmittals, etc.

- Additional evaluation concerns centered around research design, geography and institutions' participation.

*Internal Committee Functions*

- Internally, the Advisory Committee seemed always to seek ways to supplement their own recognized deficiencies. The minutes reveal that up to, and including March 1965, the committee attempted to streamline its procedural efforts. Committee members also were aware of their own dependence on readers and staff, and sought ways to prepare themselves better as an advisory committee--suggesting additional technical staff and more briefings, and exploring the possibility of site visits by the committee. No references to these internal concerns appear in the minutes after the March 1965 meeting. This is undoubtedly due to the fact that from 1965 to 1968 the resources of the program and the committee were directed toward a policy-recommending role for media activities.

*Dissemination*

- Committee members appeared concerned and always alert to deficiencies in dissemination activities under Title VII. They themselves wanted to be better informed, and discussions often took place over expanding or improving Part B.

*Small Grants*

- There seems to be evidence that the Advisory Committee basically favored the small grant program and attempted to encourage its progress. Discussion centered on prompt action in negotiations and reasonable monetary limits.

- The possibility of a central small grant office and later channelling to appropriate programs was discussed in 1964. Two ideas received a favorable response from the committee beyond this basic idea;

these called for adjustments in the Title VII small grant program of increased maximums for funds and methods of expediting small grant proposals.

*Reorganization*

- The 1965 reorganization efforts were reflected in the March and October meetings for that year. Committee members seemed uncertain about their roles during a number or discussions. In addition, some members felt obligated to make personal efforts to restore cut funds and advance the purposes of the program.

- The evaluation criteria that the committee used beyond staff reports seemed to include concerns for geographical balances as well as participation in funding, if at all possible, by those institutions sponsoring projects. In addition, members appeared to want evidence of actual educational value from projects. Committee members made considerable efforts in trying to arrive at a consensus regarding the merits of projects; only two votes were required to retain a proposal for further consideration.

- Dissemination was a major concern of the committee. Members attempted to give Part B good support and often indicated the need and value of more and better information to researchers and educators as well as the public in general.

*Other Recommendations, Sources and Data*

Two additional sources of ideas and data were used for this chapter. As indicated in the section on the Title VII Advisory Committee, three of the Advisory Committee meetings were spent formulating suggestions and recommendations to the Commissioner on the subject of the rapidly growing field of educational technology. In some instances, these expressed concern over the administration and management of programs such as Title VII. Where appropriate, and where the suggestions and recommendations were in accord with ideas put forth by other categories of respondents, these recommendations and suggestions have been included. The principal catalyst, on the USOE staff, for organizing these recommendations and assisting the Advisory Committee appeared to be Andrew R. Molnar.

From its inception in April 1969, the Advisory Committee created for this specific project has directed its attention to the administration and management of Title VII, and has also speculated on what types of legislation would improve the impact of media on the classroom. Again in keeping with the intersect theory, these ideas have been included where they were in consonance with those from other categories.

## WHAT CAN BE LEARNED FROM THE TITLE VII EXPERIENCE TO GUIDE THE ADMINISTRATION OF FUTURE PROGRAMS OF THIS KIND?

This study has tried to derive a balanced analysis of the administrative procedures and problems of Title VII by means of long interviews, questionnaires, or statements from each of the groups who were in a position to know the Title VII program best.

Needing to deal with apparently variant and conflicting inputs, the study made extensive use of an "intersect theory of analysis" approach in an effort to approximate "objective reality." Using such analysis the areas of overlap (or intersect) are purposively searched out and serve as focal points for analysis. When faced with a profusion of opinions, this is a sound approach to use.

As expected, the comments and answers overlapped on certain key problems--notably on the functioning of the central staff and the Advisory Committee, the relationship of the committee to the Commissioner of Education, and the importance of the field readers. Moreover, there were differences of opinion on these matters, both within and between groups so an effort was made to identify the overlaps and to analyze the emerging patterns of consensus as well as of disagreement. In some respects, the differences were even more revealing than the points of consensus.

The following recommendations have been derived from this kind of "intersect analysis." The degree of agreement on the key problems and what to do about them, that is evidenced in all the sources, has been most encouraging to the project staff.

### About the Central Staff

Concerning the central staff of a program committed to research, development, and application of innovative approaches in education, the following guidelines are suggested:

> *A guaranteed tour of duty longer than two years must be assured so that the professional staff will have an opportunity to review, evaluate, and modify the selection procedures based upon project outcomes. Provisions should be included to assure continuity, familiarity, and overlap for at least a portion of the staff with even the longest-lasting funded projects.*

*It would be useful to have a careful review and structuring of career development patterns within the Office of Education in order to attract and hold highly qualified personnel. To help "capture" such personnel, a guaranteed leave period, such as two months each summer or four months every two years, might well be provided. By offering this to USOE personnel, the individual is not faced with the diminution of his professional standing, competence, or being--placed at a competitive disadvantage.*

*Future programs designed to administer legislation dealing with research and dissemination of innovative approaches in education should include in their staff some of each of the following types of personnel:*

- *A person experienced in evaluating research designs.*
- *A person experienced in training people in the effective use of innovations and in their introduction into the classroom or lowest denominator of instruction.*
- *A person with practical experience in the use of educational technology or with innovative methods and techniques at the elementary, secondary, and higher education levels.*
- *A person knowledgeable in product development and of the technical requirements of the new approaches.*
- *A contracts and fiscal officer who would either be assigned to the project staff or maintain an "educational technology" desk in the contracts office, especially if the unique dimensions of the innovation (i.e., new equipment, etc.) require special contract arrangements.*

*The assumption here is that there is a concern with providing salaried positions within the legislation to adequately staff new programs for which monies are appropriated.*

*Provision might well be made to establish "visiting chair" appointments in the Office of Education for leaders from the fields of education, industry, and research, who have expertise in educational technology or the area under concern. These persons could serve as consultants to the staff as well as to personnel in the field.*

*Incentives comparable to those commonly offered should be established for professionals who are competent and willing to devote the major portion of their time to the combination and coordination of research findings and developments, dissemination, and implementation, rather than to original research.*

About the Advisory Committee. These guidelines are suggested as a reflection of all the comments and constructive suggestions that were surveyed regarding the Advisory Committee:

*The concept of an Advisory Committee with broad representation from different educational and technology sectors seems to be a sound one to incorporate in future legislation, but such a committee should be used chiefly for policy and programmatic guidance rather than project approval.*

*The tenure of an Advisory Committee member should be at least three years in order to provide for continuity and reassessment of earlier decisions in light of the outcomes of the approved projects. It would be valuable for the committee to meet at least three times a year, two days at a time, rather than twice a year so as to hopefully amortize their potential in aiding such a program.*

*Future programs of this kind should benefit from the availability of special task forces to supplement the expertise of the Advisory Committee and staff, and to provide broader representation from the educational technology field as well as greater ability to deal with substantive issues. A task force, for example, might deal with the specific area of individualized instruction, interact with the Advisory Committee and staff, and develop recommendations as to what needs to be done and what attack on the problem appears most promising. Such task forces could be convened and disbanded as required, and certain Advisory Committee members might serve on them to provide a link with the main committee.*

*The Commissioner of Education might well have the right to appoint one or two short-term members to the Advisory Committee to satisfy emerging needs of the program or to provide specialized service of importance at a given time.*

*Future legislation of this kind should clearly place final approval of projects under the jurisdiction of the Commissioner, who is responsible for them.*

About the field readers. The Title VII staff remembered the field readers as "valuable," "irreplaceable," helping to "speed up the selection procedures," and extending "the 'political' base of the program." The majority of the staff felt that the competence and personnel of the field reader group could not have been effectively matched or equaled within the Office of Education. Appreciation for their work was expressed also by members of the Advisory Committee. It is worth noting also that the pattern of using "study sections" of field readers to advise on proposals has worked well in some of the most effective federal research programs, and that such a system can provide useful representation from the academic and industrial communities. It is concluded that:

*Field readers should be used in a program of this nature, even if more staff members with research competence can be provided within the Office of Education.*

*Furthermore, field readers should be retained for a long enough period to permit them to observe and benefit from the research outcomes of their decisions. This would substantially upgrade their decision-making competence.*

About the keeping of records. The Title VII project revealed a surprising lack of completeness of record-keeping on individuals who had been awarded projects. An inordinate amount of time was required to locate project numbers or the total number of dollars expended on the various projects. Such useful information as the number of doctoral candidates whose dissertations were supported by Title VII or who held research assistantships under various Title VII projects that helped them through their graduate study does not seem to be available anywhere. There is also very little recorded as to what publications or other dissemination activities resulted from these projects. Documents published by the U. S. Office of Education,

ERIC Clearinghouse acquisitions, and the special project undertaken by the North American Rockwell Corporation to document Title VII, all point to serious gaps. As one example of this, it is impossible to say with confidence exactly how many projects--there are "somewhere" between 700 and 725--were conducted under Title VII. It is concluded that:

> *A system of accounting for and taking inventory for projects funded under future programs like Title VII should be established and maintained in keeping with recommended practices of good administration and management.*
>
> *It is also suggested that a record of projects turned down should be kept. Also the criteria that were applied in evaluating grants should be maintained in a fashion that would facilitate any future evaluations, reviews and analyses of the expenditures of federal funds.*
>
> *To assure appropriate and effective utilization of funds expended for any large scale equipment acquisition programs, checks and balances should be retained by the authorized and mandated agency.*

About the general nature of such programs. Recommendations emerged which would apply to a number of programs in this area. If the intent of a program is to effect change in the schools, and some expectation is identified in this direction, then:

> *Future legislation should require that all research efforts direct some portion of their energies to documenting how the project outcomes can be translated into practice. It should be accepted that the researcher need not be the one who implements or applies the results of the research. Three different outcomes might be required: (1) a research report; (2) developed prototype products; and (3) a demonstration of utilization.*
>
> *Conversely, although the Title VII program provided for research and dissemination, there was little attempted in the way of feeding "use experience" data from the classroom back into the program to aid in continuing evaluation and to provide guidance for the funding of future projects. A number of vehicles might be utilized for this purpose.*

*The emphasis should be on fewer development funds with a greater commitment to see those trends carried through the entire Research, Development, Application and Feedback cycle. The inclusion of the essential Feedback process in an R.D.A.F. cycle, as contrasted with only an R.D. and A. cycle will provide "wisdom" for the intelligent management of future programs.*

*Regional laboratories should get closer to their public by keeping informed regarding what the practitioners are doing and then analyzing and reporting their findings. The appropriate ERIC Clearinghouses might be given this responsibility. Additional support should be provided to such groups as the Education Products Information Exchange which is devoted to this problem.*

*The legislation should provide for the formation of large advisory committees representing state departments of education, urban school districts, universities, etc., <u>not</u> to evaluate projects but to set or modify the guiding philosophy of the program. Expected results could include relevance testing, readiness feedbacks for OE, and a sense of involvement in research that will predispose favorable recommendations at the school level.*

*More projects should be initiated that require an "accounting" by project directors or recipients of funds regarding the administration of the program, success with projects, impact on classroom, dissemination of results, etc. The value of this impact project must be viewed also in light of developing these sensitivities in the field and stressing the importance of accountability. As observed in this Title VII analysis, professionals are concerned about accounting for the outcomes of their efforts and are willing to cooperate in such ventures. In the past, however, they have seldom been asked, nor have they been instructed in processes for carrying out accountability activities.*

*New legislation should attempt to integrate current fragmented laws and programs pertaining to the technology which are now in effect and also provide <u>adequate</u> funds for a rapidly growing field such as this one.*

About deriving maximum classroom effect from a research program. Were the expectations for Title VII unrealistic? Yes, if research and disseminated information about the results were expected to lead to swift and sweeping changes in the American classroom. Swift changes of any kind are contrary to everyday experience with the American educational system, and the hope that dramatic change could be brought about simply by telling schools about research findings is contrary to everything that has been learned about the process of educational innovation.

There are indications that many who were involved with the program felt that Part B was the weak link in Title VII. This opinion needs to be closely scrutinized.

Certainly in terms of the visible "monuments" Title VII left behind, the institutions built under Part B were more visible than anything left by Part A, the useful results of which are very hard to measure on a short time scale. Although less was done than was desirable to make public the results of Part A research, still the basic trouble seems to have been less with the results obtained under Part B than with the concept of Part B.

The Part B concept was based on a rational model of educational change: that if the school system is informed of the results of educational research it will hasten to translate them into practice. The question is whether this is a realistic expectation?

In the last century we have seen a number of swift and significant social changes arising from medical or technical innovation. For example, there was the development of insulin, polio serums, and antibiotics. The production of hog cholera serum was a turning point in the growth and acceptance of the United States Agricultural Extension Service program. The rapid acceptance of the automobile and of television have led to great changes in the life styles of our society. But in none of these cases was research translated directly or quickly into popular, or even practical use. The basic research was followed by a long period of development, evaluation, and testing before a product could be

presented for adoption. Furthermore, in many cases these innovations required little expenditures of effort from users.

Comparing the above described process of change with the type of change that Title VII was trying to bring about reveals vast and basic differences. One should note that even the difference between the way Part A and Part B of Title VII worked was great, not to mention their difference from other programs aiming at educational change.

This was due to the fact that Title VII could not concentrate research on a given area, product, or problem, nor fund adequately the transition steps between research and school use. Availability of information about the research did not guarantee translation into new practices. More was needed.

At best, information dissemination is not a quick or easy process. In the late 1930's the Mort studies at Columbia Teachers College estimated that 50 years would pass between the appearance of an educational idea and its wide acceptance as common practice. In recent years it has been found that once sufficient development of an idea has taken place, the diffusion of the innovation takes place much faster than the earlier Mort studies indicated. For example, the first known use of teacher's aides was in Bay City, Michigan, in 1952. By 1961 it was estimated that 9 percent of elementary and 18 percent of secondary schools were making at least some use of them. A recent study (Center for Urban Education, New York City) estimates that 200,000 paraprofessionals are now at work in the schools. Team-Teaching was being used by about 5 percent of secondary schools in 1955-56, while an estimated 12 percent used team-teaching in 1960-61. These innovations, of course, were not really the results of basic research; rather, they were administrative solutions to old problems which suddenly became more aggravated by the "baby boom" of the 1950's.

In contrast, consider the concept of teaching reading. Although substantial evidence was gathered that there might be a better way, teaching reading remained relatively unchanged for several decades. The materials available largely

determined how reading was taught in the schools, and reader series and manuals maintained nearly nation-wide uniformity of teaching methods despite the fact that (as Miles asserts in his book Innovation in Education) only "One-third of a sample of reading experts--peers of those who had prepared the materials--had confidence that they were based on 'definite scientific proof.'"

## Some recent innovations in curriculum and instructional technology

In 1957 only 46 language laboratories were known to have existed in secondary schools. There were an estimated 5000 of them in use in 1962. What happened to bring this about? The tape recorder was relatively well perfected by 1957, nonetheless later technical developments did make it simplier, easier to use, and cheaper. Drill material was available from years of use in oral classroom practice. Transferring language drill from the teacher to a machine did not especially threaten the teacher; it simply took away one of his most tedious and time-consuming tasks making it possible for students to practice by themselves. Therefore, a product was available of a kind that the teacher wanted. But what really made the difference was the massive infusion of federal funds to help local school districts purchase equipment and the availability of language institutes, and ready-made demonstrations programs, to help the school personnel learn to make effective use of such facilities.

It has been estimated that 90 percent of the high schools in the United States adopted driver education in a span of 18 years. How and why did this come about so fast? For one thing, because little research was needed before one could begin. The materials and methods were neither new nor sophisticated and consisted mostly of manuals of traffic laws, cautions for safety, and practice at the wheel. Automobiles were made available free of charge in most places. What made the chief difference? There appeared enormous community pressure, generated by parents' fears for their children's safety. Moreover, there was strong support by auto dealers, local governments, state highway departments, and insurance companies--even to the extent of reducing premiums to teenagers who had taken a driver education course. Without such broad and strong community pressure, and shift in emphasis on the educational goals, adoption has not gone so fast. For example,

it has been noted that it took 60 years to get wide acceptance of the idea that pupils could learn something by studying their own communities.

For years before the 1950's mathematicians had known that other approaches to the study of mathematics had certain clearly identifiable advantages over the approaches used in American schools. The theory for a new approach was available. What was needed was a mammoth project in curricular development. Money for this kind of project became available because of the new educational concerns of the late 1950's and, for the first time, leading scholars were willing to devote time to developing a suitable curriculum, rather than concentrating on basic research.

When the materials were ready, they entered the commercial channels of distribution, and were presented to the schools with the enormous prestige of leading scholars, with the national interest apparently involved, and with a great amount of federal money being made available for conferences, workshops, and in-service teacher training in the "new math."

The new curriculum of the Physical Science Study Committee (PSSC) did not grow out of new research, but rather out of the dynamic leadership of Professor Jerrold Zacharias of M.I.T. In turn his leadership grew out of a general feeling among scientists that high school graduates were coming to the universities with inadequate preparation in science. Then Sputnik unlocked the treasury. Between 1956 and 1959, 4.5 million dollars (equal to one full year's expenditure under Title VII) were spent in designing, testing, and revising of textbooks, teachers' guides, laboratory guides, and all sorts of apparatus, films, and tests. These were tried out in schools, and passed into the hands of commercial distributors in 1960. A total of 250 scientists, teachers, and materials specialists worked on these materials. When they were published a large amount of federal money was made available for teaching modern physical science to teachers in the classroom. More than 2000 teachers were introduced to PSSC physics by 1961. Estimates indicated that approximately one-fifth of all secondary school physics students were studying PSSC materials by 1963. Yet, even with all this effort of development and application, slightly more than one-half of the teachers who were brought to the institutes did not adopt the new course.

Another case of educational "lag" time is evidenced in the slow acceptance of the theory of programmed instruction. It had been developed out of basic research in learning completed long before Professor B. F. Skinner's famed 1954 article in the Harvard Educational Review drew so much attention to it. That is, it had been known for a long time that a student learned efficiently by practicing responses; that some schedules of reinforcement worked better than others for these responses; that it was useful to design a learning exercise around a behavioral objective that could be measured; and that it was possible to construct an efficient learning experience by testing it on students. One of the advantages of the programmed instruction process was that basic and developmental research could go on together. What seemed to be called for, when Title VII came into existence, was a very large and concentrated activity in constructing and testing instructional programs which would simultaneously improve both the theory and materials-and then put it to use.

Considering its meager resources and the difficulty that it had in trying to focus research, Title VII contributed considerably to this task. What happened, however, was that expectations for programmed instruction outran the materials. The new method passed rapidly into commercial hands. A false start was made with "teaching machines," thousands of which were sold to schools before there were adequate programs for them. Publishers offered programs that had not been adequately tested. There were no concentrations of scholarly talent such as had been gathered around the curriculum revisions, and no general evaluation of materials. Schools adopted many such materials, and promptly began to have doubts about their quality and value. Simultaneously, teachers found that some programs did not work well at all or else did not fit into their curricula. Furthermore, there were no available funds, as there had been for language laboratories, to help schools buy the necessary materials. In addition, there has been a certain amount of negative reaction to programmed instruction, and presently it achieves only a fraction of its potential contribution to instruction. The chief reason seems to be an inadequate program of development and application to school use.

Individualizing instruction is one of the main currents of the present educational ferment in the overall movement to fit a student's own pace, progress, and needs, and to concentrate the learning on a student's self-directed activity rather than on cramming knowledge into him. Obviously, this is immensely more complicated than, for example, the introduction of a language laboratory, because it involves entirely

new methods, materials, reorganization of schools, and extensive experimentation. Indeed, it constitutes a very broad current of innovation and therefore tends to be resisted because it conflicts with the existing structures of schools which are designed to handle large groups efficiently. Individualization, on the other hand, requires a quite different pattern of organization. Consequently, although the general belief is that individualized instruction is the way of the future, it has barely come into use in a significant number of schools.

The Commission on Instructional Technology, in their 1969 report, titled To Improve Learning, summed up some of the reasons why innovation does not take place in the schools more quickly than it does. For one thing, there is a "lack of practical understanding" about the process of human learning. (Charles E. Silberman, Director of the Carnegie Study of the Education of Educators, wrote that "the degree of ignorance about the process of education is far greater than I had thought. Research results are more meager or more contradictory, and progress toward the development of viable theories of learning and instruction is far slower.") Secondly, there is insufficient money available for innovation, thus only a small fraction of school budgets is ever available for any form of instructional materials. Thirdly, the structure of today's school system--grades, courses, credits, departmentalization--leaves limited leeway for any considerable innovative change, not to mention the tradition of awarding teachers' salary increases solely based upon longevity instead of some measure of ability to obtain observable improvement in student performance. When federal funds are pumped into emergency needs, most of them are used to repair and maintain the old system rather than to devise new systems and methods.

Looking more specifically at the obstacles barricading innovation, the Commission on Instructional Technology has noted that: (1) there is an indifference or antipathy toward using technology in education (Professor Elton Hocking reported that "Many administrators of school districts, colleges of education, universities, or State education departments regard technology as a kind of profanation of the classroom"); (2) the programs and materials that are available are often of a poor quality; (3) the existing new equipment that is being offered is inadequate (Howard J. Hausman, of the National Science Foundation, wrote that "the hardware is really in a never-never land of great promise and disappointing achievement."); (4) when a school has obtained such materials as films and such tools as projectors then far too often they are inaccessible to the user; (5) teachers are usually not trained in taking

full advantage of instructional technology; and (6) it must be realized that the few media specialists that are on school staffs usually have very little to do with the central curriculum planning.

The lesson to be drawn--one that is strongly supported by the Title VII experience--is that there are many steps between an innovative idea that emerges from research and the successful use of such an innovation in the classroom. Telling people about research results is only a tiny step along the road.

As a matter of fact, Title VII developed several effective ways of "disseminating" results--notably the ERIC system, but also the system of abstracts and interpretive studies. But even if the dissemination effort had been more effective that it actually was, very substantial efforts would have to be made in the development, application, and feedback of experience data to guide further research and development. In another sense, Title VII, through its involvement of students in projects, also disseminated "know-how" about innovations. A review of Title A and B projects (where student numbers were listed) revealed 137,000 youngsters, from preschool throug higher education, had clearly participated. Add to this total the number of preschoolers viewing Sesame Street, the over 17 million watching NITC programs, the large number of students involved in reuse of materials developed as part of the Part A activities or the Part B dissemination efforts (i.e., Pennsylvania State University), the total becomes very impressive. Necessarily, all of this would have had to intervene between research and the classroom. It's easy to expect too much of research. As an example, consider some of the steps that an innovative process might have to surmount after successfully emerging as a sample of Title VII research, not necessarily in this order, or including all these steps:

Additional research, to remove the uncertainties and restrictions and to sharpen the idea to the point where it is ready for development.

Development and testing of the software.

Development and testing of the hardware.

Reliable evaluation of both software and hardware, so that they could be confidently recommended as a working unit.

Demonstration, so that the innovation could be observed in action by potential users.

User training, if needed, for the personnel who would use the innovation.

Securing financial aid, if needed, to help users, such as school districts, acquire the materials, equipment, or personnel required for use of the innovation.

Making expert consultation available, if needed, to help with local application and adaptation.

Provide for an ongoing system of feedback, to broaden the evaluation of the new method or materials by reporting back to the researchers and developers information about actual use "in the field." This would make possible further revisions and improvements in the innovation.

Establish management structures and processes, to facilitate the implementation of the innovations. Some consideration must be given to methods and means for providing the "river-bed" in which the innovation may flow.

This long process, which is outlined above, has been recognized by the chief students of innovation, and in the principal plans established for speeding educational change. For example, when California decided to make a major effort to improve the teaching of languages, science, and mathematics, with the aid of Title III funds, the State Department of Education found it necessary to do a minimum of three things: (1) share costs with local systems, (2) furnish expert consultation to guide local systems in adaptation and modification, and (3) help local systems test the effectiveness of their innovations. All this was deemed necessary even though the particular program that was selected picked up the innovative process at a point in time when development of materials and methods was supposedly completed.

In this perspective, some of the most farsighted grants of Title VII may have been those that helped establish the research and development centers and foreshadowed the regional laboratories which would carry on the research, development, and application processes beyond the point where it had to be left by Title VII. Another particularly successful example of this type of Title VII contribution would be the support it provided to institutions like the instructional television

libraries that would serve to validate and make easily available superior instructional materials.

In retrospect, the legislation failed to provide adequately for the steps beyond the initial research in the innovation process. And it appears that a principal lesson to be learned from Title VII experience, to guide future legislation, is the following:

> *Future legislation built on research and aiming at rapid educational improvement should provide mechanisms for the integration of research into a much broader program for achieving change.*
>
> *In particular, the legislation might profitably make provision for research at different stages of the process--basic studies, development testing, application, evaluation and feedback from practitioners. It should provide, either within its own program or in close cooperation with other legislation, for such research-related activities as development of materials and equipment if needed, demonstration, guidance and assistance to school systems in acquiring necessary materials and equipment, and for the training of teachers to use them. It also might provide for sharing the expenditures of innovation and for cooperative activity with state departments of education and local systems.*

These deficiencies in Title VII were recognized and considered in later legislation such as ESEA and EPDA. The experience gained from these later efforts should be incorporated into any future legislation.

> *In order to simplify the translation from initial research to the rest of the innovative process, it would be useful to require all research projects to devote some time to documenting how the project outcomes might be translated into practice. The researcher himself need not be the person who implements or applies the results of his research. Where appropriate, however, a contractual arrangement might call for a research report, dissemination, the development of prototype products, and their application to a practical situation.*

About "categorical legislation." One of the questions most frequently raised about Title VII is whether this kind of categorical legislation is as productive as allocating the

same money into a general research program such as Cooperative Research. The argument on one side is that a highly focused research program in one area, such as media, tends to be isolated from ongoing work on other aspects of education. On the other side, it is argued that categorical research is necessary to concentrate effort and to give a boost to a specific field of educational study at crucial times. Title VII seemed to satisfy proponents of both viewpoints. It was specific but remained in the mainstream.

Little evidence could be found to suggest that Title VII research suffered from the researchers not being involved with what was going on elsewhere in the educational process, or from being isolated from studies of the substance, as distinguished from the method, of education. The categorical quality was not found to be the chief restriction upon Title VII. Rather, what acted as a restriction was the fact that Title VII was organized with but an incomplete idea of the innovative process which must account for all its component parts. It is probable that categorical legislation of this kind should have a limited life and then be absorbed into broader programs, as Title VII was.

During its lifetime, Title VII clearly did give a boost to the field of instructional media and technology, did bring new people and institutions into the field, and did create institutions to carry on after its expiration.

> *Categorical legislation of the kind represented by Title VII can be useful in the future when it is desired to give a special push forward to some field or other specific aspect of instruction, provided that the legislation is not drawn so narrowly as to isolate the work done under it from the mainstream of educational ideas, research, development, and application.*

About control over research topics. One of the features of Title VII that proved wasteful in certain respects, and frustrating to persons in the program who wanted to speed innovation, was the requirement that the initiative for Part A research proposals should come exclusively from the proposers, and that the U. S. Office of Education or the Advisory Committee should themselves take no initiative in focusing and inviting research on a few key topics.

Any research program aiming at advancing a field of knowledge should, of course, allocate some of its resources to men rather than topics, and to promising research ideas whether or not they fit into clusters of ongoing research. To do otherwise

would cut the program off from promising sources of new insights. But the question is whether a mission-oriented program should not be permitted to cluster a large part of its research, thus enabling more efficient use of resources to accomplish the mission. For example, a cluster of related research projects would help to sharpen findings and would lead more quickly into the development phase. The timing for this type of activity would depend upon the maturity of the field. If many new ideas are desired, then the less constraint on the purposes the better. If a refinement of a range of products already concerned is desired, then more programmatic efforts are required. Title VII needed the new ideas, initially. The research needed for later phases of the innovative process--development, evaluation, application, and dissemination--would also seem to depend on the effectiveness of the central initiative.

The percentage of the research in a mission-oriented program that should be free-wheeling is something that cannot be estimated here. It seems clear, however, that efficient advancement of such a program will require central commitment or a greater part of the resources to limited priority lines which are then more likely to be carried through from idea to application. It is suggested that:

> *Limited resources will be used more effectively for research in future legislation of the Title VII variety if after new ideas begin to emerge. A considerable portion of them can be concentrated by developing a research program, focused on a limited number of high priority projects.*
>
> *A greater amount of control over the choice of priority areas for mission-oriented research might profitably be concentrated in the U. S. Office of Education or a comparable level of initiative, working with a task force of researchers and practitioners. And half the prerogative should be given to individual researchers to propose studies that do not cohere with other work, and consequently, do not necessarily contribute to the bulk of important knowledge. This procedure would tend to maximize the use made of available funding resources.*

About development of materials and equipment. Title VII made almost no direct contribution to the development of and less than might have been expected to the specific production of widely used curriculum materials. For

example, the large programs of curricular revision in the late 1950's and 1960's went forward without much direct help from Title VII. Title VII had little also to do with the technical developments that promise to have a considerable impact upon instructional technology--8 mm. film and film projectors, cassette loading tape recorders, and inexpensive videotape recorders, for example. Yet successful innovation requires that materials and equipment of these kinds be made available. It is suggested that:

> *Future legislation in support of educational innovation should provide funding (wholly or partly) for some high priority development activities at a level adequate to carry through all the developmental steps from conception to ultimate application by the general user.*
>
> *Such projects should not only allow for the original research and product development phases but should include provisions for initial periods of controlled use of the products in actual school or institutional settings so as to provide for effective feedback channels for product evaluation and subsequent redevelopment. Thus, when such feedback indicates needs for revisions or for additional software, then such improvements could be solicited from interested manufacturers. A development project involving hardware should thus also provide for a coordination link to assure more effective use of the resultant product. Close examination also should be given to how programmatic product development is being undertaken in currently supported OE efforts such as the regional laboratories and R&D centers directed toward product evaluation.*

About making maximum use of existing knowledge. At the beginning of Title VII, relatively little experience was available with research programs such as those encouraged by the National Defense Education Act. There is now a considerable amount of such information and this should be utilized in formulating any future legislation. One of the things found out was that available knowledge in the field was being inadequately utilized. The creation of the Educational Resources Information Centers (ERICs) was a useful, though incomplete effort, to remedy the situation. As steps toward a more complete solution, it is recommended that:

*Any future legislation for research and application studies should endeavor to take maximum account of both the research that has been done and the experience that has been gained with regard to the subject matter to which the act is directed.*

*The legislation should stipulate that an initial study be conducted in which information about the current state of the art should be compiled, evaluated, and summarized for presentation in forms usable at different levels, such as by the researcher, the manufacturer, and the teacher. Some agency similar to the regional laboratories might well be used to research and gather field experience data and compile it for feedback to a central unit for processing ~~and distribution~~.*

*The ERIC system might well be supplemented by special units or task forces to process the above-mentioned research findings for use at different levels of educational needs.*

About accountability. Although Title VII did stress the idea of accountability and evaluation, future legislation should do even more. Particularly, in terms of developing better and more consistent schemes for accounting for results..... reports of cost-benefits should be encouraged in connection with innovations. Most professionals are concerned about accounting the outcomes of their efforts, and are willing to cooperate in such reporting, provided meaningful methods are available. In the past, they have seldom been asked to do so. Thus, it is suggested that:

*Future legislation should stipulate that more of the study contract projects require an accounting by project directors of the accomplishments of their projects including a precise statement of goals and objectives sought, their impact on classrooms, the dissemination of these results, and so forth. Cost-benefits measures should be fully incorporated into projects that include the application and use of an instructional innovation. However, leeway should be provided occasionally for the exploration of such project goals which might not yield any impressive cost effective outcomes.*

# APPENDIX

# NDEA TITLE VII PROJECTS PART A

| NAME | PROJECT | LOCATION | DATE | AMOUNT (in thousands) |
|---|---|---|---|---|
| ADKINS, Dale R. [illegible] | A study of the critical requirements for directors in educational TV stations. | University of Kansas | 1965–68 | 8 |
| ALLEN, William H. A-402 | A study of the non-linearity variable in films preservation. | University of Southern California | 1965–63 | 49 |
| [illegible] | Audio implementation of still and motion pictures. | University of Southern California | 1965–67 | 50 |
| [illegible] | A [illegible]dy of visual and auditory presentation in dental lecture and lab instruction. | University of Southern California | 1965–67 | 73 |
| [illegible] | Learner response, feedback and review in films preservation. | University of Southern California | 1965–67 | 68 |
| [illegible] | Motion variables in film presentations. | University of Southern California | 1966–67 | 60 |
| [illegible] | Exploratory study of form perception as applied to the production of educational media. | University of Southern California | 1966–67 | 9 |
| [illegible] | Effectiveness of different combinations of visual and verbal presentation modes in teaching different kinds of learning tasks. | University of Southern California | 1967–69 | 97 |
| [illegible] (Cleary, Ralph) A-407 | Retention by elementary school children of natural science material taught by TV. | Boston University | 1960–61 | 10 |
| [illegible] [illegible] | Assessment of five conditions of teacher-program interaction. | Department of Public Instruction Harrisburg, Pennsylvania | 1965–68 | 178 |
| [illegible] A-[illegible] | Administrative and instructional adjustments resulting from the use of programmed materials. | Pennsylvania State Department of Instruction | 1962–64 | 10 |
| [illegible] A-[illegible] | Sensory interrelationships in the automated teaching of foreign languages. | San Jose State College | 1960–61 | 9 |
| A-[illegible] | Vision and audition in language learning. | San Jose State College | 1961–63 | 24 |
| [illegible] [illegible] | An automated primary grade reading and arithmetic curriculum for culturally deprived children. | Stanford University | 1962–68 | 180 |
| [illegible] A-[illegible] | Experimental investigation of the use of automated instructional device in teaching elementary latin. | Hobbs College | 1963–61 | 8 |
| [illegible] [illegible] | Application of Guilford's structure-of-intellect to programmed learning. | Arizona State University | 1964–66 | 60 |
| [illegible] [illegible] | Close-reality evaluation involving television and photography in the teaching of endoscopy. | Pennsylvania Hospital | 1965–67 | 187 |
| [illegible] A-[illegible] | New instructional media, self instruction, guided instruction and the role of the teacher. | Earlham College Richmond, Indiana | 1965–66 | 101 |
| [illegible] [illegible] | Exploratory investigation of "Sensory Image Types" in foreign language learning. | Indiana University | 1967 | 9 |
| [illegible] [illegible] | Learning and student interaction in small self-directed college groups. | Hope College | 1967–68 | 9 |
| [illegible] [illegible] | Accurately predictive of teaching in classroom behavior through use of motion picture tests. | Oregon State System of Higher Education | 1965–67 | 65 |
| [illegible] | Rehabilitation in cosmetic training. | Oregon State System of Higher Education | 1966 | 9 |
| [illegible] A-[illegible] | Study to determine the relative effectiveness of the use of a series of filmed demonstrations in teacher education for a new high school math curriculum. | National Educational TV and Radio Center New York | 1965–66 | 200 |
| [illegible] A-[illegible] | Assessment of some newly designed educational programs for the self-teaching of young children in school and home. | Portland State College, Oregon | 1965–65 | 75 |
| [illegible] | Comparative study of seven educational programs for preschool children. | Oregon State System of Higher Education | 1966–67 | 90 |
| [illegible] A-[illegible] | Determination of factors contributing to success and failure among [illegible]. | University of Iowa | 1967–69 | 9 |

| NAME | PROJECT | LOCATION | DATE | AMOUNT (in thousands) |
|---|---|---|---|---|
| BELFORTE, John<br>BRS-1082 | Exploring ways to integrate audiovisual media with elementary school instructional practices. | Jefferson Elementary School District, California | 1966 | 9 |
| BENNETT, Ann<br>BRS-1377 | To index research projects suitable for making up semantic search cards. | Self | 1965–66 | .28 |
| BERGER, Emanuel<br>BRS-0683 | Assessment of three foreign language strategies utilizing three language laboratory systems. | Pennsylvania Department of Public Instruction<br>Harrisburg, Pennsylvania | 1965–67 | 161 |
| BERN, H. A.<br>BRS-0901 | Improving the quality of teacher performance by use of the video tape recorder. | Indiana University | 1960–61 | 66 |
| BIDDLE, Bruce J.<br>BRS-0837 | Impact of media on the school as an institution. | University of Missouri | 1962–63 | 154 |
| BRS-0892 | Essays on the social systems of education. | University of Missouri | 1962–63 | 40 |
| BIRCH, Jack W.<br>A-753 | The development and evaluation of programmed instruction in language for children with auditory disorders. | University of Pittsburgh | 1961–62 | 12 |
| [illegible], Rose Stockton]<br>A-878 | Programmed instruction and the correction of written language of adolescent deaf students. | University of Pittsburgh | 1962–63 | 10 |
| BLACK, Harvey S.<br>BRS-0871 | Subvocal and isolvocal pictorial color cues in discrimination learning – manipulation stimuli practice procedures and intervals, figure discriminability, test procedure and age of subject. | Indiana University | 1962–65 | 9 |
| A-699 | Improving the programming of complex pictorial materials. | Indiana University | 1961–62 | 3 |
| BRS-0870 | The effect of observation of pictorial stimuli on Transfer Tests. | Indiana University | 1963–66 | 80 |
| BLACK, William A.<br>A-891 | The effectiveness of filmed science courses in public secondary schools. | Kansas State College<br>Pittsburg, Kansas | 1959–60 | 60 |
| A-825 | Evaluation value of filmed science courses. | Kansas State College<br>Pittsburg, Kansas | | |
| BLANCHARD, Leonard S.<br>A-868 | Development and evaluation of a curriculum for education mental retardates utilizing self-instructor device or teaching machines. | Edward Johnson Research Center | 1959–63 | 170 |
| BLOCK, A. Henry<br>BRS-0858 | Test of the use of a program of instruction to teach math requiring only minimal reading skills for use as a remedial tool for college freshmen. | Morgan State College<br>Baltimore, Maryland | 1966 | 8 |
| BOSCARELLI, PATRICK, G. W.<br>BRS-0900 | Study of characteristics contributing to the effectiveness of visual demonstrations. | Rensselaer Polytechnic Institute | 1962–65 | 57 |
| BOYD, Jack H.<br>BRS-0901 | Using simulation techniques to change attitudes of education majors toward professional course objectives. | Oregon State System of Higher Education | 1959–64 | 6 |
| BRADLEY, George P.<br>A-915 | Modern language audio-visual research. | Wayne State University | 1958–60 | 204 |
| BRANDENBURG, Harry<br>A-880 | Development of a filmed program for teaching the manual alphabet. | Gallaudet College | 1960–65 | 61 |
| BRUECKNER, Leo J.<br>A-884 | Role of teaching machine programs in achieving educational objectives. | American Institute for Research, Pittsburgh, Pennsylvania | 1954–60 | 60 |
| A-896 | Research in terms of system control and programmed instruction. Initial and cumulative effects of selection and effectiveness of programs. | American Institute for Research, Pittsburgh, Pennsylvania | 1960–64 | 60 |
| A-1004 | Investigation of teaching of [illegible] instructional programs. | American Institute for Research, Pittsburgh, Pennsylvania | 1962–65 | 60 |
| BRUNER, [illegible] | [illegible] of [illegible] of [illegible] [illegible] of [illegible] of [illegible] [illegible] of [illegible] [illegible]. | American Institute for Research, Pittsburgh, Pennsylvania | 1963–66 | 60 |

| NAME | PROJECT | LOCATION | DATE | AMOUNT (in thousands) |
|---|---|---|---|---|
| BRYAN, Edward E.<br>A-447 | A comparative study in the teaching of high school chemistry and physics. | Oklahoma State Department of Education | 1960–61 | 16 |
| BUCH, John H.<br>(Edward Tracy)<br>A-759 | A comparison of four variations of language instruction in beginning French. | Easton, Pennsylvania High School System | 1961–63 | 31 |
| BUCHANAN, Cynthia D.<br>A-482 | Investigation of principles involved in adapting linguistic materials for use with automatic instructional media. | Hollins College | 1960–61 | 3 |
| BUCHHEIMER, Arnold<br>BRS-0870 | Videotapes and kinescopic recordings as situational test and lab exercises in empathy for the training for counselors. | City University of New York | 1962–64 | 90 |
| BURKHART, James A.<br>A-250 | Experiment to determine the values of using amplified classroom telephone interviews with significant individuals to enrich certain college courses. | Stephens College<br>Columbia, Missouri | 1959–60 | 16 |
| BURRIS-MEYER, H.<br>BRS-0646 | Inquiry into the educational potential of non-verbal communications. | Florida Atlantic Ocean Science Institute | 1968–70 | 216 |
| BURROUGHS, Elaine L.<br>A-535 | Experiments with the applications of audiovisual and automatic devices to the teaching of French. | Hollins College | 1960–61 | 3 |
| CAMPBELL, Donald T.<br>BRS-0893 | Exploration of novel research designs and measurement techniques. | Northwestern University | 1962–64 | 77 |
| CAMPBELL, Vincent N.<br>(Leslie Briggs)<br>A-533 | Studies of bypassing as a way of adapting instruction programs to individual differences. | American Institute for Research and Behavioral Sciences | 1960–62 | 65 |
| BRS-0117 | Degree of student control over programmed instruction — long term cumulative effects on problem solving and transfer. | American Institute for Research and Behavioral Sciences | 1964–65 | 90 |
| CAMPEAU, Peggie L.<br>A-1180 | Level of anxiety and presence or absence of feedback in programmed instruction. | American Institute for Research and Behavioral Sciences | 1964–65 | 4 |
| CARPENTER, C. R.<br>C-1008 | Research report on operational plans for developing regional educational media research centers. | Pennsylvania State University | 1961–62 | 25 |
| A-587 | Comparative research on methods and media for presenting programmed courses in Math and English. | Pennsylvania State University | 1962–63 | 187 |
| CARPENTER, Lorraine J.<br>A-510 | Comparative study of the effectiveness of three techniques of film utilization in teaching a selected group of educable mentally retarded children enrolled in public schools in Louisiana. | Grambling College<br>Louisiana | 1959–60 | 21 |
| CARPENTER, Ray C.<br>A-831 | A field experimental study of the functions of educational TV. | University of Minnesota | 1962–63 | 60 |
| CASSE, Harry W.<br>A-1038 | Measurement and analysis of physiological response to film. | University of California | 1963–64 | 21 |
| A-832 | Basic exploration of an automated teaching system. | University of California | 1962–63 | 150 |
| CAVE, Charles J.<br>A-1061 | Effectiveness of photographic media in the modification of children's classroom behavior and self concepts. | University of Florida | 1963–64 | 68 |
| CHANDLER, Clayton W.<br>A-1005 | Experimentation in the adaptation of the overhead projector utilizing 16th transparencies and 8th overlays in teaching engineering descriptive geometry curricula. | University of Texas | 1963–64 | 14 |
| CHRISTENSEN, Ross G.<br>A-1041 | Cinematographic studies on teaching the concept of direct variation and proportion. | Loyola University | 1963–64 | 6 |
| CLARK, Marion J.<br>A-1156 | Improving language arts of bilingual through multimedia. | New Mexico Highlands University | 1964–65 | 65 |
| CLARK, Owen J.<br>A-1045 | Development of and method to test the relative effectiveness of sports visual production techniques for instructional TV. | University of Illinois | 1963–64 | 13 |

| NAME | PROJECT | LOCATION | DATE | AMOUNT (in thousands) |
|---|---|---|---|---|
| COGSWELL, John F.<br>BR5-0738 | New solutions to implementing instructional media through construction of school simulation vehicle. | System Development Corporation<br>California | 1963–65 | 194 |
| COHEN, David B.<br>BR6-8670 | Study of the efficiency of learning when both incidental and intentional learning occur simultaneously. | St. Leo College | 1966–67 | 7 |
| COHEN, Jozef<br>BR5-0515 | Studies in Mnemonic Programming. | University of Illinois | 1965–66 | 8 |
| COOK, H. Robert<br>A-1018 | Effects on learning of structural drills in Spanish broadcast via high frequency AM radio. | Indiana University | 1963–64 | 4 |
| COONEY, Joan<br>BR8-0475 | Television for preschool children. | National Educational TV, New York | 1969 | 1,030 |
| COOPER, Theodore B.<br>A-280 | Exploratory investigation of perceptual reactions of southern undergraduate Negroes to visual material depicting various groupings of ethnic subjects. | Florida Agricultural and Mechanical University | 1959–60 | 12 |
| CRAMER, H. Leslie<br>BR5-0955 | Intelligibility of compressed speech. | Harvard University | 1965 | 9 |
| CROSBY, Gladys<br>A-391 | Development and evaluation of perceptual materials for an individualized approach in ninth grade algebra. | Queens College | 1959–62 | 34 |
| CURTIS, H. A.<br>(Krapp)<br>A-385 | Experimental analyses of the effects of various modes of item presentation on the scores and factorial content of tests administered by visual and audiovisual means – a program of studies basic to TV testing. | Florida State University | 1960–61 | 40 |
| DAWSON, Marvin<br>A-1020 | Role of context in learning pictorial materials. | Indiana University | 1963–64 | 2 |
| DAY, Willard F.<br>A-676 | Programming a teaching machine course in thinking and problem solving. | University of Nevada | 1960–62 | 2 |
| de SOLA POOL, Ithiel<br>A-083 | The out-of-classroom audience of WGBH a study of motivation in viewing. | Massachusetts Institute of Technology | 1959–61 | 80 |
| DETERLINE, William A.<br>BR7-1071 | Development of a programmed course for group instruction of secondary teachers and administrators in the techniques of instructional technology. | General Program Teaching<br>Palo Alto, California | 1967–68 | 84 |
| DEVAULT, M. Vere<br>A-419 | TV and consultant services as methods of inservice education for elementary school teachers of math. | University of Texas | 1960–61 | 72 |
| DEWITT, Joseph J.<br>A-032 | ID & evaluation on economical and practical method of proving intellectual stimulation to gifted pupils in small secondary schools through a TV instructional program. | Department of Education<br>State of Maine | 1959–62 | 207 |
| DIBELIUS, John A., Jr.<br>BR8-0479 | Identification and analysis of the alternative for achieving greater TV program diversity in the United States. | Spindletop Research Center<br>Lexington, Kentucky | 1968 | 39 |
| DICTEROTT, Richard<br>BR8-0809 | Development, testing and evaluation of a programmed method for the teaching of U.S. composition. | Chapman College | 1965–66 | 9 |
| DOROUGH, E. Dwight<br>(Marie Shurtz)<br>A-551 | Automated instruction of remedial English. | University of Houston | 1960–62 | 50 |
| DREVER, Elizabeth W.<br>A-067 | The effectiveness of social training with TV in changing opinions of intellectually superior students. | Michigan State University | 1961–62 | 110 |
| [illegible]<br>BR8-0815 | Effectiveness of audio-visual in changing the opinions of intellectually superior students. Phase II. | Michigan State University | 1962–63 | 60 |
| [illegible]<br>A-808 | The effects of movie exposition on film learning. | University of California | 1960–61 | 15 |
| [illegible]<br>A-109 | Report on evaluation on "What is Democracy?" | Phoenix City Public Instruction, Phoenix | 1959 | 97 |
| [illegible]<br>A-101 | Study of the effectiveness of audiovisual reading materials when presented according to the principles of instructional research. | Oregon State System of Higher Education | 1960–61 | 95 |

| NAME | PROJECT | LOCATION | DATE | AMOUNT (in thousands) |
|---|---|---|---|---|
| EDLING, Jack V.<br>BR6-2454 | Experiments with education media designed to modify attitudes. | Oregon State System of Higher Education | 1966–68 | 36 |
| ENGAR, Keith M.<br>A-575 | Investigating TV distribution of visual aids on the University of Utah campus via low-power UHF. | University of Utah | 1960–62 | 50 |
| ENTWISLE, Doris R.<br>A-1012 | Four studies involving the use of programmed materials in engineering education. | Johns Hopkins University | 1962–63 | 5 |
| BR5-1370 | Teaching engineering design, a study of jobshop. | Johns Hopkins University | 1964–65 | 65 |
| EVANS, Richard I.<br>A-051 | The University Faculty and educational TV hostility, resistance, and change, a social psychological investigation in depth. | University of Houston | 1959–62 | 114 |
| FATTU, N. A.<br>BR5-0850 | Variations in instructional media, processes, content and aptitude variables in relation to efficiency of cognitive goal attainment. | Indiana University | 1962–64 | 112 |
| FELDMAN, Shirley (Deutsch, D. P.)<br>BR5-0737 | A study of the effectiveness of training for retarded readers in the auditory perceptual skills underlying reading. | New York Medical College New York | 1963–65 | 90 |
| FERSTER, C. B.<br>A-355 | The role of review material in continuous programming with teaching machines. | Indiana University | 1960 | 9 |
| FLANDERS, Ned A.<br>A-033 | Development & evaluation of sound filmstrips for improving teacher-pupil contacts in the classroom. | University of Michigan | 1959–62 | 83 |
| FLEMING, Malcolm<br>A-800 | Influence of three teaching machine factors — feedback to programmer, participation by the learner, and feedback to learner on the production and utilization of science films. | Indiana University | 1961–63 | 33 |
| BRS-0512 | Instructional illustrations — a survey of types occurring in print material for four subject areas. | Indiana University | 1965–68 | 28 |
| BRS-0447 | Message design, the temporal dimension of message structure. | Indiana University | 1965–67 | 19 |
| FOLLIS, Lee<br>A-269 | The use of closed circuit TV to improve teacher effectiveness. | Fontana School District, California | 1959–61 | 33 |
| FRAZIER, Alexander<br>A-298 | Testing the effectiveness of Two-Purpose TV programs in contributing to both teacher and pupil learning. | Ohio State University | 1959–60 | 35 |
| FRITZ, John G.<br>A-339 | The effect on instruction of the complementary use of audiovisual media with modified patterns in the use of the teaching staff. | University of Chicago | 1960–62 | 51 |
| FRYE, Charles H.<br>A-047 | Group versus individual pacing in programmed instruction. | Oregon State System of Higher Education | 1961–62 | 3 |
| FULTON, W. R.<br>(Omer Ruppel)<br>A-152 | Selected vicarious experiences versus direct observational experiences of pre-service teacher in the foundation area of professional preparation at the University of Oklahoma. | University of Oklahoma | 1959–61 | 75 |
| GAGNE, Robert M.<br>BRS-0439 | The relationship of visual presentations to (individual) differences and effective learning and retention. | American Institute for Research, Pittsburgh, Pennsylvania | 1963–65 | 69 |
| GAGNE, Paul A.<br>A-800 | Student response to linear and branching sequences in conventional and programmed televised instruction. | University of Ohio | 1962–64 | 45 |
| GAGNON, Ralph J.<br>A-031 | The integration of science teaching by TV into the elementary school program. | Boston University | 1959–60 | 60 |
| A-007 | An investigation of concept development in elementary school science teaching by TV. | Boston University | 1959–60 | 60 |
| A-008 | Modern language project of the Massachusetts council for public schools, teacher training division, summary of research on "certain factors," and rep. | Boston University | 1959–61 | 60 |
| GILLESPIE, William G.<br>BRS-0868 | An investigation of the importance of the several relationship and associated factors in teaching machine procedure. | University of Illinois | 1962–64 | 104 |

| NAME | PROJECT | LOCATION | DATE | AMOUNT (in thousands) |
|---|---|---|---|---|
| GILMORE, Alden S.<br>BR5-0667 | Further development, comparison, and evaluation of programmed instruction for retarded children. | University of South Florida | 1965–67 | 108 |
| GLASGOW, M. W.<br>A-253 | A study of the relative effectiveness of selected approaches to the in-service education of teachers in the utilization of in-school radio and TV broadcasts. | University of Oklahoma | 1959–61 | 57 |
| GOLDEN, Ruth I.<br>A-559 | Effectiveness of instructional tapes for changing regional speech patterns. | Detroit Public Schools | 1960–62 | 30 |
| BR5-0386 | Effectiveness of instructional tapes for changing dialect patterns of urban primary school children. | Detroit Board of Education | 1965–67 | 72 |
| GORDON, John M.<br>BR5-0747 | The effectiveness of four variations of programmed science materials. | Michigan State University | 1965 | 7 |
| GORDON, Morton J.<br>A-425 | TV Education in elementary school speech improvement. | University of Hawaii | 1960–62 | 18 |
| GORDON, Oakley J.<br>(Keith Engar)<br>A-129 | Challenging the superior student by making the study of Russian available in the elementary school curriculum via TV. | University of Utah | 1960–63 | 106 |
| GOTTLIEB, David<br>BR5-0714 | The elementary school system in relation to teaching and learning methods. | Michigan State University | 1962–64 | 68 |
| GRANT, Theodore S.<br>A-064 | TV in health sciences education. | University of California | 1960–63 | 152 |
| GROPPER, George L.<br>A-336 | Stimulating pupil participation in the learning process by techniques of suspense anticipation, and competition in televised instruction. | Metropolitan Pittsburgh Educational TV Station | 1960–61 | 126 |
| A-637 | Instructional techniques for improving understanding of scientific principles through televised demonstrations. | Metropolitan Pittsburgh Educational TV Station | 1961–63 | 127 |
| A-872 | Evaluation of procedures for "individualizing" group instruction by television. | Metropolitan Pittsburgh Educational TV Station | 1962–64 | 105 |
| BR5-0643 | Programming visual presentations for procedural learning. | American Institute for Research, Pittsburgh, Pennsylvania | 1963–66 | 69 |
| BR5-1077 | Experimental evaluation of methods for improving conventional TV lessons. | Metropolitan Pittsburgh Educational TV Station | 1964–66 | 83 |
| BR5-0936 | Experimental investigation of visual representation in instruction. | Metropolitan Pittsburgh Educational TV Station | 1963–65 | 98 |
| GROW, Earl G.<br>BR5-0761 | Large screen TV involving student learning, space saving, and faculty acceptance. | Marquette University | 1960–67 | 9 |
| GUBA, Egon<br>(Millicent Wolf)<br>A-875 | Perception and TV – physiological factors in TV viewing. | Ohio State University | 1961–63 | 61 |
| BR5-0637 | A study of eye movement in TV viewing. | Ohio State University | 1963–65 | 167 |
| HALL, Keith A.<br>A-550 | Investigation of programming principles as applied to the production and utilization of filmstrips and filmstrip-type materials in natural science. | Pennsylvania State University | 1961–64 | 59 |
| HAMILTON, John G.<br>A-1020 | Level of achievement, retention, and transfer of training in spelling as a function of mode of presentation. | Bucknell University | 1962 | 5 |
| HANSEN, Duncan<br>BR5-0531 | Research and implementation of computer-based instruction of physics by computer-assisted instruction. | Florida State University | 1965–68 | 257 |
| HARRELL, Bruce<br>A-149 | Comparative evaluation of two modern methods for teaching a spoken language. | University of Washington | 1959–62 | 70 |
| HAYMAKER, Charles W.<br>A-660 | Study of controlled change of positive and slight overcorrection TV and an analysis of attitude of various groups toward educational TV. | Indiana University | 1960–63 | 9 |

| NAME | PROJECT | LOCATION | DATE | AMOUNT (in thousands) |
|---|---|---|---|---|
| HARRIS, Charles O.<br>A-251 | Development of problem solving ability and learning of relevant-irrelevant information through film and TV versions of a strength of materials testing laboratory. | Michigan State University | 1959–62 | 55 |
| HAYDEN, Jess<br>BR5-0898 | Animated serial sections — a teaching aid for oral histology and embreology. | Loma Linda University | 1965–66 | 5 |
| HAYES, Robert B.<br>BR6-2179 | Immediate learning reinforcement in a complex mental motor skill (driver training) using motion pictures. | Harrisburg School District, Pennsylvania | 1966–67 | 12 |
| HEAD, Sydney<br>A-060 | Field experiment in the summertime use of open-circuit TV instruction to bridge the gap between high school and college. | Miami University | 1959–61 | 63 |
| HERRICK, Merlyn C.<br>A-674 | The effect of problem-setting questions on rate and amount of learning in programming teaching machines. | Indiana University | 1961–62 | 2 |
| HICKEY, Albert<br>A-899 | Requirements for graphic teaching machines. | Northeastern University | 1961–62 | 33 |
| HOBAN, Charles F.<br>A-523 | Determinants of audience formation and reactions to early-morning TV college credit courses. | University of Pennsylvania | 1960–63 | 86 |
| BR5-0837 | Determinants of adult enrollment in televised college — credit courses, social characteristics and reactive behavior. | University of Pennsylvania | 1963–65 | 47 |
| HOFFMAN, Lee<br>BR5-0750 | Learner-participation techniques in a programmed course on elementary government and civics via TV. | Tulane University | 1963–64 | 48 |
| HOWE, Harold B.<br>A-250 | Development of animated films to facilitate creative space perception. | Rensselaer Polytechnic Institute | 1959–61 | 37 |
| HUGGINS, William H.<br>BR6-2816 | Exploratory studies of two kinds of films of engineering education. | Johns Hopkins University | 1967–68 | 35 |
| HUNT, Lyman C.<br>A-309 | Experimental project appraising the effectiveness of a program series on reading instruction using open-circuit television. | Pennsylvania State University | 1959–61 | 77 |
| HUNT, William A.<br>A-1075 | The use of programmed instruction in introductory psychology for teachers. | Northwestern University | 1963–64 | 3 |
| IVEY, Sara<br>A-276 | Study of closed-circuit TV as a teaching technique for speech improvement in the public school system. | University of Arkansas | 1959–60 | 21 |
| JACKSON, John R.<br>A-262 | Improvement of biology instruction through use of recorded lectures to increase contact between students and senior staff members. | Wayne State University | 1959–60 | 75 |
| JAFFE, Abram<br>(Allan Barton)<br>BR5-0720 | Studies in the utilization of TV in the schools: a further analysis of data collected for the NY State experts educational TV project. | Teachers College Columbia University | 1963–64 | 10 |
| JENSEN, Paul H.<br>BR5-1121 | Self-evaluation in in-service teacher education. | Oregon State System of Higher Education | 1965–68 | 147 |
| JENKINS, Esther C.<br>BR5-0886 | The efficacy of videotape and direct observation for teaching observational skills. | University of Hawaii | 1964–65 | 10 |
| JOHNSON, Charles E.<br>A-328 | Development of methods and materials to facilitate foreign language instruction in elementary schools. | University of Illinois | 1959–61 | 80 |
| A-760 | Development and evaluation of methods and materials to facilitate foreign language instruction in elementary schools. | University of Illinois | 1961–62 | 61 |
| JOHNSON, Donald M.<br>BR5-0555 | Educational psychology by videotape for in-service teachers. | Pennsylvania State University | 1964–65 | 10 |
| JOHNSON, T. Craig<br>A-074 | Investigation of motion picture film and its program analysis feedback to improve TV teacher training. | University of Ohio | 1960–61 | 84 |
| JOHNSTON, Roland E.<br>A-246 | Magnetic recordings and visual displays as aids in teaching introductory psychology to college students. | Drexel Institute of Technology, Pennsylvania | 1959–61 | 69 |

| NAME | PROJECT | LOCATION | DATE | AMOUNT (in thousands) |
|---|---|---|---|---|
| JOYCE, Bruce<br>BR5-1079 | Exploration of the utilization of personnel in the supervision of student teachers when educational media are employed. | Columbia University | 1966–67 | 10 |
| KAGAN, Norman<br>BR5-0887 | The interpersonal recall techniques in the counseling process. | Michigan State University | 1963–65 | 120 |
| BR5-0880 | Interpersonal process recall technique. | Michigan State University | 1965–67 | 175 |
| KALLENBACH, W. Warren<br>BR6-1303 | Effectiveness of videotape practice teaching sessions in the preparation of elementary intern teachers. | San Jose State College California | 1966–67 | 69 |
| KARIS, Charles<br>BR5-0773 | The interactive effect of response per frame, response mode, and response confirmation on inframe S-R association strength. | Northeastern University, Boston | 1965–67 | 35 |
| KARLSEN, Bjorn<br>BR5-0746 | Teaching beginning reading to hearing-impaired children, using a visual method and teaching machines. | University of Minnesota | 1964–66 | 71 |
| KEENAN, Thomas A.<br>BR8-0697 | The Educational Network. | EDUCOM | 1968–69 | 135 |
| KELLER, Robert J.<br>A-077 | Closed-circuit television in teacher education. | University of Minnesota | 1959–63 | 286 |
| KERSH, Bert Y.<br>A-907 | Directed discovery versus programmed instruction: A test of a theoretical position involving educational technology. | Oregon State System of Higher Education | 1962–64 | 15 |
| BR5-0848 | Classroom simulation -- further studies on dimensions of realism. | Oregon State System of Higher Education | 1964–66 | 45 |
| A-886 | Classroom simulation -- a new dimension in teacher education. | Oregon State System of Higher Education | 1962–63 | 17 |
| (Twelker)<br>BR5-0774 | Successive vs. simultaneous attainment of instructional objectives in classroom simulation. | Oregon State System of Higher Education | 1965–67 | 78 |
| KETCHAM, Carl H.<br>A-378 | Experiment to determine the effectiveness of motion pictures with sound in the teaching of materials which cannot be directly portrayed in visual images. | University of Arizona | 1960–63 | 11 |
| KINNIELL, W. T.<br>BR5-0351 | The testing and modification of overhead projection transparencies for special use with classes for the deaf. | Texas Educational Agency | 1965–67 | 78 |
| KLAUS, David J.<br>(Lumsdaine)<br>A-337 | Self-instructional supplements for a televised physics course, study plan and experimental design. | American Institute for Research in Behavioral Sciences | 1960–61 | 96 |
| BR5-0712 | Development and evaluation of procedures for using self-instructional media to develop student capability for independent thinking and judgment. | American Institute for Research in Behavioral Sciences | 1960–62 | 69 |
| KEISLAR, Evan R.<br>BR5-0511 | A "talking book" system of teaching beginning reading. | University of California | 1963 | 7 |
| KNOWLTON, James Q.<br>A-038 | Studies of patterns of influence in the actual situation as they affect the use of A-V materials. | Indiana University | 1959–62 | 42 |
| KNUDSON, James G.<br>BR6-0813 | An investigation of the feasibility of the use of television and electronmation systems to teach graduate engineering courses at remote locations. | Oregon State University | 1967–69 | 85 |
| KOPKAS, Avgust<br>BR5-0807 | An analysis of the effectiveness of closed circuit TV in team teaching. | St. John's University New York | 1963 | 10 |
| KRAUSER, Arthur<br>A-845 | Development of abstract thinking in children through programmed instruction. | University of Rochester New York | 1961–62 | 5 |
| KRESS, Gerard E.<br>BR5-1102 | Study of social facilities during programmed instruction. | American Institute for Research in Behavioral Sciences | 1963–67 | 88 |
| BR5-0755 | The effects of pacing on programmed learning under varied administrative conditions. | American Institute for Research in Behavioral Sciences | 1962 | 91 |
| KRUMBOLTZ, John D.<br>BR5-0251 | Factors affecting the design of effective teaching machine programs. | Michigan State University | 1961–65 | 91 |

| NAME | PROJECT | LOCATION | DATE | AMOUNT (in thousands) |
|---|---|---|---|---|
| LEE, Allen<br>A-C-1057 | Need for and feasibility of regional educational media research organizations with a regional research improvement orientation. | Oregon State System of Higher Education | 1961–62 | 25 |
| LEMKE, Olga<br>A-491 | The effectiveness of TV in teaching guidance at the sixth grade level. | Portland School Department | 1960–61 | 3 |
| LEVENS, A. S.<br>A-686 | Teaching the fundamentals of orthogonal projection, a study in the film presentation of the thought model method. | University of California | 1961–63 | 11 |
| LEVIN, Gerald R.<br>A-538 | Principles of programming materials for teaching machines and their relation to transfer of training. | Brown University Providence, Rhode Island | 1960–61 | 3 |
| LEVINSON, Elias<br>A-445 | Effects of motion pictures on the response to narrative. | New York University | 1960–61 | 2 |
| LIVINGSTON, J. Sterling<br>BRS-0447 | Development of a multi-media course in economics for the U.S. Naval Academy. | Sterling Institute Washington, District of Columbia | 1968–69 | 241 |
| LOWELL, Edgar L.<br>A-023 | Experimental evaluation of AV methods-changing attitudes toward education. | John Tracy Clinic Los Angeles | 1959–63 | 163 |
| LUMSDAINE, A. A.<br>BRS-0844 | Automated instruction for procedural skills required by professional personnel. | University of California | 1961–63 | 35 |
| BRS-0883 | Study of cueing on request or on a delayed response in automated instruction. | University of California | 1961–62 | 2 |
| LYBRAND, William A.<br>BRS-0471 | International uses of media and cross-cultural comparisons. | American University | 1968–70 | 149 |
| Mc BEATH, Ronald J.<br>A-462 | A comparative study on the effectiveness of the filmstrip, sound filmstrip, and filmograph for teaching facts and concepts. | University of Southern California | 1960–61 | 3 |
| MacDOUGALL, Mary A.<br>BRS-1310 | Methods of presenting programmed science materials to fourth grade level pupils of varying ability and achievement. | University of Virginia | 1966–68 | 65 |
| McINTYRE, Charles J.<br>A-457 | Televised instruction in university residence halls with trained undergraduates as discussion leaders. | University of Illinois | 1960–64 | 141 |
| BRS-0841 | An application of the principles of programmed instruction to a televised course in college — economics. | University of Illinois | 1964–66 | 10 |
| McINTYRE, Kenneth<br>A-332 | Study to determine specific sources of resistance to the use of audiovisual materials by college and university teachers and the development of procedures for overcoming the barriers to optimum use. | University of North Carolina | 1959–61 | 92 |
| McKEEGAN, Hugh F.<br>(Richard F. Wyma)<br>A-839 | Assessment of a graduate level self-teaching based on a combination of programmed instruction and the case method. | Pittsburgh University Pennsylvania | 1962–63 | 3 |
| McLUHAN, Herbert M.<br>A-279 | Understanding Media. | National Association of Education Urbana, Illinois | 1955–60 | 35 |
| McNEIL, John D.<br>BRS-0503 | Auditory discrimination training in the development of word analysis skills. | University of California | 1963–67 | 39 |
| MacDONALD, Neil W.<br>BRS-0857 | Television drama preference choice. | University of Minnesota | 1956–60 | 7 |
| MADDEN, Nathan<br>A-099 | Sound film recordings in improving classroom communications. | Stanford University | 1951–63 | 119 |
| MAHLER, Thomas W.<br>BRS-1157 | An evaluation of the communications media used in the adult liberal studies program: Phase I. | University of Georgia | 1959–61 | 10 |
| BRS-1158 | An evaluation of the communications media used in the adult liberal studies program: Phase II. | University of Georgia | 1961–63 | 39 |
| BRS-1159 | An evaluation of the communications media used in the adult liberal studies program: Phase III. | University of Georgia | 1963–65 | 51 |

| NAME | PROJECT | LOCATION | DATE | AMOUNT (in thousands) |
|---|---|---|---|---|
| MALLINSON, George G.<br>BR5-0758 | Programmed materials for the blind. | Western Michigan University | 1963–66 | 10 |
| MARTIN, Walter T.<br>A-109 | Oregon Educational Television Project | University of Oregon | 1959–63 | 177 |
| MARTINI, Harry R.<br>BR5-0558 | Development of filmstrip sequence photographs and sound reproduction of educational television presentations. | North Brandywine Junior High, Pennsylvania | 1965–66 | 10 |
| MARZOLLO, Frank<br>BR5-1119 | Methods of presenting programmed instructional materials by teaching machine and computer. | Michigan State University | 1966–67 | 32 |
| METCALF, Richard M.<br>BR5-0422 | Exploratory analysis of projection-standard variables (screen size, image size and image contrast) in terms of their effects on the speed and accuracy of discrimination. | University of New Hampshire | 1961–62 | 2 |
| MEYN, Constance F.<br>A-1023 | The effects of negative practice on the acquisition and retention of material in a self-instruction program of spelling. | Bucknell University | 1963 | 3 |
| MILLER, Thomas E.<br>BR5-1078 | Educational media in instructional systems development at the Ohio State University. | Ohio State University | 1965–67 | 10 |
| MILLER, William C.<br>BR5-0731 | The relationship of film movement and emotional involvement response and its effect on learning, etc. | University of Southern California | 1965–66 | 6 |
| MOAKLEY, Francis<br>BR5-0424 | The effects of relative sound increase and decrease in film mediated learning. | Indiana University | 1965–67 | 4 |
| MONOHAN, Patrick E.<br>BR5-0748 | Assimilation of new automated teaching methods into the school instructional repertoire. | Wisconsin Heights Joint District No. 1 | 1965 | 9 |
| MOORE, J. William<br>BR5-0757 | Development and evaluation of a programming technique for relating frame difficulty to the ability of the learner. | Bucknell University | 1963–65 | 40 |
| (Wendell Smith)<br>BR5-1381 | Motivational aspects of automated instruction. | Bucknell University | 1961–63 | 77 |
| MORRIS, James H.<br>A-107 | Television Junior College in Oregon. | Oregon State System of Higher Education | | |
| MORRISON, Arthur H.<br>BR5-0894 | Experimental study utilizing closed-circuit television in the teaching of dentistry. | New York University | 1959–61 | 186 |
| MYERS, Lawrence, Jr.<br>BR5-0869 | The identification of effective TV teachers. | Syracuse University | 1962–65 | 71 |
| A-161 | An experimental study of influence of the experienced teacher on TV. | Syracuse University | 1959–60 | 27 |
| NASCA, Donald<br>BR5-0719 | Effect of varied presentations of laboratory exercises within programmed materials on specific intellectual factors of science problem solving behavior. | State University of New York | 1964–65 | 19 |
| A-1017 | Effect of varied presentations of laboratory exercises within programmed materials on student ability to apply scientific principles to problem situations. | State University of New York | 1963–64 | 12 |
| NEIDT, Charles O.<br>BR5-1118 | The relationship of the new educational media to non-intellectual factors in learning. | Colorado State University | 1960–67 | 82 |
| A-C1600 | The relationship of new educational media to non-intellectual factors in learning. Literature review of research involving non-instructive factors in learning. | Colorado State University | 1962–63 | 33 |
| BR5-0957 | Use of videotaped instructional TV for teaching study skills in a university setting. | University of Colorado | 1963–66 | 18 |
| A-C1120 | The relationship of New Educational Media to non-instructive factors in learning Phase II. | Colorado State University | 1963–64 | 61 |
| NELSON, Carl G.<br>BR5-1094 | Effectiveness of the use of adjunct programmed analysis of musical works on students' perception of form. | State University of New York | 1966–67 | 60 |

| NAME | PROJECT | LOCATION | DATE | AMOUNT (in thousands) |
|---|---|---|---|---|
| OLIVER, G. E.<br>A-130 | Study of preservice teacher education in the use of media of mass communication for classroom instruction. | University of Georgia | 1959–62 | 47 |
| ORR, David B.<br>A-1056 | Factors associated with the rate of speech and learning. | American Institute for Research, Pittsburgh, Pennsylvania | 1963–65 | 54 |
| BR5-0801 | Further research on speeded speech as an educational medium. | American Institute for Research in Behavioral Sciences | 1965–67 | 144 |
| BR7-0642 | Time-compressed speech as an educational medium — studies of stimulus characteristics and individual differences. | American Institute for Research in Behavioral Sciences | 1967–69 | 101 |
| PAINE, Frank R.<br>A-375 | Student councils, investigation of their visual aids and utilization. | University of Mississippi | 1960 | 30 |
| PAINTER, William I.<br>A-127 | Production and use of classrooms on film versus traditional observations in teacher education. | University of Akron, Ohio | 1959–61 | 31 |
| PALMER, Edward<br>BR8-0520 | Development and validation of criteria for evaluating media training. | Oregon State System of Higher Education | 1968–69 | 108 |
| PARNES, Sidney J.<br>BR5-0716 | Programming creative behavior. | State University of New York | 1963–66 | 60 |
| PATRICK, Robert B.<br>A-217 | Measurement of the effectiveness of the documentary sound-film as a supplement in the teaching in the secondary schools. | Pennsylvania State University | 1959–62 | 97 |
| A-868 | Effectiveness of the documentary sound film as a supplement in secondary school teacher education — a followup of first year teacher performance. | Pennsylvania State University | 1962–63 | 27 |
| PAULSON, Casper F.<br>A-1063 | Slow learners, competition, and programmed instruction. | Oregon State System of Higher Education | 1963–64 | 4 |
| BR5-0952 | Relationship of two techniques for developing slide-tapes to their structure and effectiveness. | Oregon State System of Higher Education | 1964–65 | 5 |
| PEERSON, Nell<br>A-417 | Experiment with evaluation in the eradication of adult illiteracy by use of TV instruction over a state education network supplemented by supervised group viewing. | Florence State College, Alabama | 1960–61 | 68 |
| PLUMPTON, Russel A.<br>BR5-0751 | Methods of determining pupil readiness for specific units of instruction presented through simulated environment media. | Board of Cooperative Education | 1963–64 | 4 |
| POLING, E. Gordon<br>A-1335 | Videotape recordings in counselling practicum. | University of South Dakota | 1964 | 10 |
| POPHAM, W. James<br>A-470 | Tape recorded lectures in the college classroom — an experimental appraisal. | San Francisco State College | 1960–61 | 3 |
| A-434 | Tape recorded lectures in the college classroom — an experimental appraisal. | Kansas State College of Pittsburg | 1960 | 3 |
| A-841 | The influence of novelty effect upon teaching machine learning. | San Francisco State College | 1961–62 | 3 |
| BR5-0201 | The use of videotapes in teacher education. | University of California | 1965–68 | 9 |
| PORTER, David H. (Third Grant)<br>A-1060 | Immediate learning reinforcement in driver training through motion pictures. | Harrisburg, Pennsylvania | 1965–68 | 58 |
| BR5-0703 | Immediate learning reinforcement in a complex mental motor skill (driver training) using motion pictures. | Harrisburg, Pennsylvania | 1965–68 | 65 |
| PRATT, Glenn C.<br>BR5-0703 | Open reading to high school biology via closed-circuit television. | Wisconsin | 1965–68 | 9 |
| PRICE, George W.<br>BR5-0703 | Effect of partial associate learning of certain word and meaning treatment sets to the stimulus stimuli. | Ball [illegible] University | 1965–68 | 6 |
| PRICE, James E.<br>A-670 | A comparison of automated reading programs with conventional reading methods as applied to teaching mentally retarded students. | Ferris State School, Michigan | 1961–62 | 5 |

| NAME | PROJECT | LOCATION | DATE | AMOUNT (in thousands) |
|---|---|---|---|---|
| RAMSEY, Curtis P.. A-492 | Research project for the development of a measure to assess attitudes regarding the uses of newer educational media. | George Peabody College, Tennessee | 1960–61 | 5 |
| RANDALL, Earle S. A-316 | Foreign languages in elementary schools, television and film project – teacher training division. | Massachusetts Council for Public Schools | 1959–60 | 87 |
| RICH, Owen S. BR5-0843 | Utilization of large-screen TV to overcome shortages of classroom space and teaching personnel. | Brigham Young University | 1965–66 | 10 |
| RICHARD, Scott T. BR5-8351 | Application of audiovisual materials and simulation to modify the Harvard case study method for preparing student personnel administrators. | Indiana University | 1966 | 9 |
| RICHARDSON, John S. A-177 | Development of a mobile laboratory for in-service education of teachers of science and mathematics. | Ohio State University | 1959–61 | 90 |
| RIPPLE, Richard BR5-0567 | Relationship of anxiety creativity and intelligence to programmed learning. | Cornell University | 1965–66 | 6 |
| ROGERS, William R. A-093 | TV utilization in the observation program for teacher education. | San Jose State College | 1959–62 | 393 |
| ROSEN, Marvin J. BR5-8332 | Experimental design for comparing the effects of instructional media programming procedures. | American Institute for Research in Behavioral Sciences | 1966–67 | 9 |
| ROWLETT, John D. A-629 | Experimental comparison of direct detailed discovery methods of presenting tape-recorded instruction. | Eastern Kentucky State College | 1960–61 | 1 |
| ROY, Rob BR5-1081 | Computer aided instruction for a course in Boolean algebra and logic design. | Rensselaer Polytechnic Institute | 1966–67 | 9 |
| RUST, Genevieve C. BR5-0845 | Effectiveness of color photographs in programmed instruction. | Southern Illinois University | 1961–63 | 3 |
| SALTZMAN, Irving J. A-658 | Construction and evaluation of a self instructional program in Russian. | Indiana University | 1961–63 | 81 |
| SANDEFUR, J. T. BR5-1009 | Observation and demonstration in teacher education by closed-circuit TV and videotape recordings. | Kansas State Teachers College | 1966–67 | 10 |
| SARGEANT, Leslie W. A-515 | Comparison of the short-term effects of certain types of TV program materials. | Pacific Union College | 1960–61 | 3 |
| SAUL, Esra A-634 | Effect of selected spatial design factors in educational displays on learning and retention. | Tufts University | 1961–62 | 9 |
| SCHALOCK, Henry D. A-671 | Motion pictures as test stimuli – an application of new media to the prediction of complex behavior. | Oregon State Systems of Higher Education | 1962–64 | 84 |
| SCHLESINGER, Lawrence E. A-1027 | Effect of relevant emotional content on performance and learning in programmed instruction. | George Washington University | 1963–65 | 59 |
| SCHRAMM/GREENHILL/SEIB A-356 | Denver-Stanford Project: Four years of research on the content of ITV. | Denver-Stanford | 1960–64 | 501 |
| SCHUELER, Herbert A-0008 | Improvement of student teaching – use of TV for improving teacher training and for improving measure of student teaching performance. | City University of New York | 1958–63 | 161 |
| SCHURE, Alexander BR5-0002 | Development of a multi-media course in physics in the U.S. Naval Academy. | New York Institute of Technology | 1966 | 215 |
| SCHUTZ, Richard BR5-0002 | Measurement procedure in programmed instruction. | State University of Arkansas | 1962–64 | 45 |
| BR5-0746 | Reinforcement of rate to pacing reading rate and adjusting reading behavior. | State University of Arkansas | 1965–66 | 68 |
| BR5-0556 | Synchronized filmstrip and tape recordings to stimulate observation in educational psychology. | State University of Arkansas | 1965–66 | 43 |
| SCHWARTZ, John A-056 | An investigation of the relative effectiveness of certain specific TV techniques on learning. | Penn-Jersey Educational TV Corporation | 1958–60 | 45 |

| NAME | PROJECT | LOCATION | DATE | AMOUNT (in thousands) |
|---|---|---|---|---|
| SCREVEN, C. G.<br>BR7-0138 | Application of programmed learning and teaching systems procedures for instruction in museum environment. | University of Wisconsin | 1967–69 | 142 |
| SEIBERT, Warren<br>BR5-0431 | Correlational analysis of the effects of learner and linear program characteristics. | Purdue University | 1965–67 | 45 |
| BR5-0846 | A study of motion pictures in educational and psychological testing. | Purdue University | 1962–63 | 51 |
| BR5-0815 | Studies in cine-psychometry, factor analysis of audiovisual memory. | Purdue University | 1965–67 | 86 |
| SHELL, William B.<br>BR6-8294 | The differential effect of interim testing in the use of an auto-instructional program in an area of general science for teachers. | Auburn University | 1966–67 | 9 |
| SHEMICK, John M.<br>A-1157 | Study of the relative effectiveness of teaching a manipulative skill – a multi-media teaching program versus classroom demonstration with printed instruction sheets. | Pennsylvania State University | 1963–64 | 4 |
| SHORT, J. G.<br>BR5-0721 | An experimental study of sequencing strategies. | American Institute for Research Pennsylvania | 1965–66 | 29 |
| SIEGEL, Laurence<br>BR5-0852 | Study of the instructional gestalt in university courses presented by TV. | Miami University | 1960–64 | 139 |
| SILBERMAN, Harry<br>A-968 | Individual tutoring techniques for the development of programming methods and theory. | System Development Corporation, California | 1962–64 | 105 |
| (John Coulson)<br>BR5-0719 | Non-program variables in the application of programmed instruction. | System Development Corporation, California | 1964–65 | 79 |
| (John Coulson)<br>A-671 | Development and evaluation of self-instructional materials for under-achieving and over-achieving students. | System Development Corporation, California | 1961–62 | 88 |
| SKINNER, B. F.<br>A-191 | An analysis of the behavioral processes involved in self-instruction with teaching machines. | Harvard University | 1960–63 | 250 |
| SMITH, Hope<br>A-486 | Viewing of oneself performing selected motor skills in motion pictures and its effect upon the expressed concept of self in movement. | University of California | 1960–61 | 1 |
| SMITH, M. Daniel<br>BR5-0888 | Non-wordal programming: a study of selected variables. | Earlham College | 1964–65 | 12 |
| BR5-0872 | An exploration of non-wordal programming in mathematics and science. | Earlham College | 1962–63 | 19 |
| SMITH, Martin E.<br>(Warren Seibert)<br>BR5-0954 | Prediction of effects with selected characteristics of linear programmed instruction. | Purdue University | 1965 | 8 |
| SMITH, Philip D.<br>A-719 | Knowledge of results and continuity of various techniques in presenting a filmstrip as factors in immediate learning and retention. | Bob Jones University Greenville, South Carolina | 1961–63 | 3 |
| SMITH, Wendell I.<br>A-489 | Programmed materials in mathematics for superior students in rural areas. | Bucknell University | 1960–62 | 58 |
| (J. William Moore)<br>A-485 | Size-of-step and achievement in programmed spelling. | Bucknell University | 1960–61 | 2 |
| BR5-0838 | Learning sets in programmed instruction. | Bucknell University | 1963–65 | 37 |
| SNOW, Richard E.<br>A-732 | Importance of selected audience and film characteristics as determiners of the effectiveness of instructional films. | Purdue University | 1961–62 | 3 |
| BR5-0847 | Factor-analytic study of instructional film learning. | Purdue University | 1963–65 | 18 |
| SOWELL, Katye<br>BR5-0757 | Effect of an aural increment in auto-instructional mathematical material for college students. | Florida State University | 1965–66 | 5 |
| SPENCER, William A.<br>A-074 | Teaching human psychology via a multi-channel data broadcasting system. | Baylor Medical College | 1959–62 | 60 |

| NAME | PROJECT | LOCATION | DATE | AMOUNT (in thousands) |
|---|---|---|---|---|
| SPOHN, Charles L. A-876 | Evaluation of two methods using magnetic tape recordings for programmed instruction in the elemental materials of music. | State University of Ohio | 1962–63 | 57 |
| BR5-0840 | Comparison between different stimuli combined with two methods for providing knowledge of results in music instruction. | State University of Ohio | 1963–65 | 87 |
| STAKE, Robert E. A-753 | Activity level and learning effectiveness. | University of Nebraska | 1961–63 | 15 |
| STARKWEATHER, J. A. BR5-0652 | Computer science instruction in elementary grades. | University of California | 1965–67 | 76 |
| STREVELL, Wallace H. A-306 | High school physics by TV – the Houston area project. | University of Houston | 1959–60 | 59 |
| STOLUROW, Lawrence BR5-0455 | Psychological and educational factors in transfer of training. Learning how to learn several cue conditions. | University of Illinois | 1962–64 | 71 |
| BR5-0230 | Psychological and educational factors in transfer of training – bibliography of studies of transfer of training. | University of Illinois | 1964–66 | 149 |
| BR5-0452 | Comparative studies of principles for programming mathematics in automated instruction. | University of Illinois | 1961–64 | 181 |
| STROTHER, G. B. BR5-0842 | Educational applications of management games. | University of Wisconsin | 1965–66 | 85 |
| SUCHMAN, J. Richard A-216 | The elementary school training program in scientific inquiry. | University of Illinois | 1959–61 | 79 |
| SULLIVAN, Howard J. BR5-0744 | The effects of selected film and counseling experiences on capable girls' attitudes toward college. | Oregon State System of Higher Education | 1963–64 | 5 |
| SUPPES, Patrick BR5-0679 | Development of mathematical concepts in children. | Stanford University | 1967 | 46 |
| TEAHAN, John BR5-0785 | Some effects of audiovisual techniques on aspirational level and ethocentric shift. | University of Wisconsin | 1965–67 | 120 |
| TENDAM, D. J. A-132 | Preparation and evaluation in use of a series of brief films of selected demonstrations from the introductory college physics course. | Purdue University | 1959–61 | 71 |
| TICKTON, Sidney G. BR8-0235 | Study of the use of new instructional media, with special attention to educational television. | Academy for Educational Development | 1968 | 15 |
| TIEDMAN, David BR6-1819 | Information systems for vocational decisions. | Harvard University | 1965–69 | 415 |
| TIEMENS, Robert K. A-459 | Comparative effectiveness of sound motion pictures and printed communications for the motivation of high school students in math. | University of Iowa | 1960–61 | 3 |
| BR5-0849 | Analysis of the application of instructional media to a basic university speech course. | Wayne State University | 1964–65 | 10 |
| TINTERA, James B. A-008E | Analysis of methods in which application of new communications media may improve teacher preparation in Language, Science and Math. | Michigan State University | 1959–63 | 109 |
| TOBIAS, Sigmund BR6-2380 | Response mode to programmed material and associative creativity. | City University of New York | 1967–68 | 29 |
| TOFFEL, George M. A-302A | Effectiveness of instruction by TV in teaching high school chemistry in Alabama schools. | University of Alabama | 1959–60 | 8 |
| TORKELSON, G. M. A-079 | An experimental study of patterns for improving the preparation of pre-service teachers in the use of audiovisual materials and of effects on pupils. | Pennsylvania State University | 1959–63 | 166 |
| TORRANCE, E. Paul A-880 | Development and evaluation of recorded programmed experiences in creative thinking in the fourth grade. | University of Minnesota | 1961–64 | 55 |
| TOSTI, Donald T. BR8-0448 | Development of multi-media course in leadership for the U.S. Naval Academy. | Westinghouse Learning Corporation, New York | 1968–69 | 400 |
| TRAVERS, Robert M. W. BR5-0456 | Research and theory related to audiovisual information transmission. | University of Utah | 1962–65 | 92 |

| NAME | PROJECT | LOCATION | DATE | AMOUNT (in thousands) |
|---|---|---|---|---|
| TWELKER, Paul A.<br>BR5-0950 | Prompting as an instructional variable in classroom simulation. | Oregon State System of Higher Education | 1965–66 | 9 |
| BR5-1117 | Interaction analysis and classroom simulation as adjunct instruction in teacher education. | Oregon State System of Higher Education | 1966–67 | 42 |
| TWYFORD, L.<br>A-283 | New media for improvement in math and science instruction. | State University of New York | 1959–63 | 101 |
| VANDERMEER, A. W.<br>A-224 | Investigation of the improvement of educational filmstrips and a derivation of principles relating to the effectiveness of these media. | Pennsylvania State University | 1959–63 | 28 |
| A-225 | Investigation of the improvement of educational motion pictures and a derivation of principles relating to the effectiveness of these media. | Pennsylvania State University | 1959–63 | 36 |
| VAN HORN, Charles<br>BR5-0713 | Investigation of the applicability of motion pictures to educational testing. | University of Illinois | 1960–62 | 3 |
| VLCEK, Charles W.<br>BR5-0959 | Assessing the effect and transfer value of a classroom simulator technique. | Michigan State University | 1965 | 8 |
| VUKE, George J.<br>A-657 | Effects of inserted questions in films on developing an understanding of controlled experimentation. | Indiana University | 1961–62 | 2 |
| WENDT, Paul R.<br>A-396 | Study to determine the extent to which instruction to university freshman in the use of the university library can be turned over to teaching machines. | Southern Illinois University | 1959–63 | 57 |
| BR5-0873 | To test refinements in intrinsic programming in pictorial, audio, and performance frames to maximize the probability of desired terminal behavior. | Southern Illinois University | 1962–65 | 31 |
| WICKLINE, Lee E.<br>A-279 | The use of motivational films to favorably change the attitudes of high school students toward science and scientists. | West Virginia State Department of Education | 1961–62 | 1 |
| WIGREN, Harold E.<br>BR6-2026 | Survey of in-school closed-circuit TV and instructional TV fixed services. | National Educational Association Washington, District of Columbia | 1966–67 | 14 |
| WILDS, Preston L.<br>BR5-0839 | Effectiveness of a programmed text in teaching gynecological oncology to junior medical students. | Medical College of Georgia | 1963–65 | 117 |
| WILLIAMS, Deloss E.<br>A-471 | The role of sponsored motion pictures in the high school. | University of Southern California | 1960–61 | 1 |
| WITTICH, Walter A.<br>A-015 | Evaluation of ways of training teachers to improve day-to-day classroom learning activities through uses of AV media. | University of Wisconsin | 1959–61 | 85 |
| WITTROCK, M. C.<br>A-1107 | The effects of verbal cues on transfer of training. | University of California | 1963–64 | 9 |
| WODTKE, Kenneth H.<br>BR5-8334 | Random versus ordered sequencing in computer-assisted instruction. | Pennsylvania State University | 1966–67 | 8 |
| WOLGAMUTH, Dale<br>A-453 | Comparative study of three techniques of student feedback in TV teaching — the effectiveness of an electrical signal feedback. | American University | 1960–61 | 11 |
| WOOD, C. David<br>BR5-0745 | Comprehension of compressed speech by elementary school children. | Indiana University | 1965 | 5 |
| WOOLSEY, Frank M.<br>BR5-0876 | The use of two-way radio in graduate medical education. | Union University | 1964–65 | 136 |
| BR6-2745 | Development, utilization and evaluation of graduate education by two-way radio active participation conferences. | Albany Medical College | 1966 | 71 |
| WEDBERG, Desmond P.<br>A-685 | Comparative investigation of the instructional and administrative efficiency of various observational techniques in the introductory course in education. | University of Southern California | 1961–62 | 3 |
| YOSHIMO, Roger<br>(J. W. Perry)<br>A-914 | Study of the effects of automated information retrieval on university students. | University of Arizona | 1962–64 | 56 |

# NDEA TITLE VII PROJECTS PART B

| NAME | PROJECT | LOCATION | DATE | AMOUNT (in thousands) |
|---|---|---|---|---|
| ALLEN, James BR5-0228 | The Cue Report. | State Education Department New York | 1963–64 | 159 |
| ALLEN, William H. B-135 | Analysis of research being conducted under Title VII, of the National Defense Education Act and preparation of related visuals. | Pasadena, California | 1960 | 1 |
| B-236a | Preparation of a course of study for the research information theory portion of a course in educational media research. | University of Southern California | 1963–65 | 16 |
| ANDERSON, James A. BR5-8471 | Equivalence of meaning among similar statements presented in print, oral and pictorial media. | Wisconsin State University | 1967 | 5 |
| ARNEST, Phillip G. BR5-1357 | Film clip pavilion, Washington, D. C. creative arts studio inc. | Creative Arts Studio, Washington, District of Columbia | 1964 | 14 |
| BARSON, John BR5-0990 | A procedural and cost analysis study of media in instructional systems development. | Michigan State University | 1965 | 211 |
| BR5-1411 | Instructional systems development – a demonstration and evaluation project. | Michigan State University | 1965–67 | 268 |
| BAUER, Eric W. BR5-0423 | Exploratory investigation of sensory image types in foreign language learning. | Indiana University | | 3 |
| BECK, Lester B-262 | Interinstitutional teaching by TV in the Oregon State System of Higher Education. | Oregon State System of Higher Education | 1962 | 29 |
| BR5-0711 | Educational media (TV) for the preschool child. | Oregon State System of Higher Education | 1965 | 11 |
| BR5-0285 | Media, creativity and change. | Oregon State System of Higher Education | 1966 | 5 |
| BIDDLE, Bruce J. BR5-1343 | The impact of new media on education and the society. | University of Chicago | 1962–64 | 19 |
| BIGGY, Virginia BR5-1192 | Northeast regional instructional TV library project. | Eastern Education Network Massachusetts | 1961–62 | 234 |
| BR5-0266 | The identification, coordinated exchange and distribution of quality instructional TV programming in the northeast region. | Eastern Education Network Massachusetts | 1965–66 | 121 |
| BILINSKI, John BR7-9006 | A cost study of educational media systems and their equipment components. | General Learning Corporation Washington, District of Columbia | 1967 | 82 |
| BIXBY, Paul W. B-374 | Campus school to a research and dissemination center. | Pennsylvania State University | 1965 | 62 |
| BLACKMAN, Leonard BR5-1342 | Demonstration film on the use of self-instructional devices in a curriculum for educable mental retardates. | Johnstone Center Bordentown, New Jersey | 1963–64 | 33 |
| BLOCK, A. Harvey B-285 | Programmed instruction and teaching machines – a national demonstration exhibit. | Columbia University | 1962–63 | 295 |
| BLOODWORTH, Mickey BR6-2536 | Plan for the systematic and continual identification of schools in the U.S. making significant use of educational media in their instructional programs. | National Association of Education, Washington, District of Columbia | 1966–67 | 111 |
| BR5-0299 | A plan for the systematic and continual identification of schools making significant use of newer media. | Department of Audio-Visual Instruction, National Education Association | 1965–66 | 27 |
| BOBONIS, Augusto B-074 | Television for teachers in service. | University of Puerto Rico | 1960–61 | 14 |
| BOECKLEN, Warren BR6-1519 | A computer study of the allocation of channels and placement of transmitters for 2500 megacycle fixed-station service in a metropolitan area containing many eligible applicants for licensing. | Audio-Visual Corporation of St. Louis | 1966–67 | 32 |
| BONDRA, George BR5-1197 | Procedures for creating a media environment to help change teacher role from disseminating to guiding independent learners. | Mount Kisco New York | 1965–67 | 181 |

| NAME | PROJECT | LOCATION | DATE | AMOUNT (in thousands) |
|---|---|---|---|---|
| BOWEN, William BR5-0987 | A regional project to assist the planning and development of inter-institutional use of recorded materials and new media. | Southern Regional Education Board, Atlanta | 1963–65 | 159 |
| BRIGGS, Leslie J. BR7-1070 | Sequencing of instruction in relation to hierarchies of competencies. | American Institute for Research in Behavioral Sciences | 1967 | 15 |
| BR5-1354 | Development of motion picture films to disseminate information on teacher roles in classroom use of programmed instruction. | American Institute for Research in Behavioral Sciences | 1963–64 | 143 |
| BR5-0291 | Instructional media – procedure for the design of multimedia instruction, a critical review of research, and suggestions for future research. | American Institute for Research in Behavioral Sciences | 1965 | 26 |
| BRONSON, Vernon B-160 | The needs of education for television channel allocations. | National Association of Education Broadcasters | 1961–62 | 66 |
| BR5-1347 | Standards of TV transmission, factors affecting microwave relay and closed-circuit transmission of educational materials. | National Association for Educational Broadcasters | 1962 | 216 |
| B-196 | Developing human resources for educational TV, reporting of a survey of personnel in educational TV. | National Association for Educational Broadcasters | 1962–63 | 48 |
| BROWN, James W. BR5-0270 | Educational media institute evaluation report. | National Association for Educational Broadcasters | 1965–67 | 143 |
| BROWN, Louis BR5-1157 | Determine the feasibility of developing two coordinated distribution systems for audiotape recorded materials. | University of Colorado | 1966–67 | 35 |
| BROWNE, Duff BR5-0267 | Investigation, development and dissemination of procedures and techniques helpful to interinstitutional use of TV and related media. | Education Board Atlanta, Georgia | 1965–67 | 302 |
| BRUGGER, John R. B-004 | Survey of television equipment and facilities used for purposes of instruction by public schools, colleges, and universities. | Washington City Education Board Maryland | 1959–60 | 22 |
| BUSHNELL, Don D. BR5-1129 | The computer: a new media for the improvement of instruction. | Brooks Foundation, California | 1966 | 11 |
| BUSWELL, Guy T. B-258 | Identification of needed research on the relationship of newer educational media to fundamental problems of teaching and learnings. | American Education Research Association Washington, District of Columbia | 1961–62 | 9 |
| BR5-1013 | Recommendations for reporting the effectiveness of programmed instruction materials. | American Education Research Association Washington, District of Columbia | 1961–65 | 33 |
| B-210 | Study formulation, and dissemination of technical information on auto-instructional programs, devices and research. | American Education Research Association Washington, District of Columbia | 1961–65 | 33 |
| CAMPION, Lee OOCc | Fourth regional leadership conference to explore ways and means of disseminating information concerning new educational media. | National Education Association | 1960–61 | 18 |
| OCCd | Fifth regional leadership conference to explore ways and means of disseminating information concerning new educational media. | National Education Association | 1960–61 | 14 |
| OOCe | Sixth regional leadership conference to explore ways and means of disseminating information concerning new educational media. | National Education Association | 1960–61 | 21 |
| OOCf | Seventh regional leadership conference to explore ways and means of disseminating information concerning new educational media. | National Education Association | 1960–62 | 17 |
| BR5-0279 | Cooperative state leadership in educational communication. | Colorado State Department of Education | 1965–66 | 55 |

| NAME | PROJECT | LOCATION | DATE | AMOUNT (in thousands) |
|---|---|---|---|---|
| CARPENTER, C. R.<br>BR7-1142 | Conditions and variables affecting the quality of instructional TV. | Pennsylvania State University | 1967–68 | 40 |
| B-159 | Bibliography of human communications with special reference to the new educational media. | Pennsylvania State University | 1960–61 | 2 |
| CARROLL, John B.<br>BR7-1069 | Learning from verbal discourse in educational media. | Educational Testing Service | 1967–68 | 15 |
| COCHRAN, Lee W.<br>B-254 | Work-study conference on new educational media for National University extension association. | University of Nebraska | 1961–62 | 8 |
| COGAN, Morris L.<br>B-260 | Professional education of media service personnel preliminary edition. | University of Pittsburgh | 1963–64 | 29 |
| COHEN, Edwin G.<br>B-035b | National instructional television demonstration. | National Educational TV & Radio Center | 1962–63 | 262 |
| B-035d | National instructional library demonstration. | National Educational TV & Radio Center | 1963–64 | 253 |
| CONNELLY, John W.<br>B-106a | Findings and discussion on state laws dealing with the use of audiovisual instructional aids in the public elementary schools. | Washington, District of Columbia | 1961–62 | 29 |
| COX, Robert A.<br>BR6-1431 | Director of summer session courses on educational media for 1966. | Educational Media Washington, District of Columbia | 1965–66 | 3 |
| BR6-1570 | Sources of information on educational media. | Educational Media Washington, District of Columbia | 1966–67 | 11 |
| CUTHBERTSON, Jack<br>BR5-0993 | Study and plan for the use of media in the preparation of administrators. | University of Ohio | 1964–67 | 204 |
| CYPHER, Irene F.<br>B-029 | A survey of the kinds of dissemination activities that hold the greatest promise for improving the use of new educational media in the public schools and institutions of higher education in New York State. | New York State Audio-Visual Council | 1960–61 | 27 |
| DAVIS, O. L.<br>(Harold Wigren)<br>B-OOCa | Second pilot regional leadership conference to explore ways and means of disseminating information concerning new educational media. | Phoenix, Arizona | 1959–60 | 19 |
| (Harold Wigren)<br>B-OOCb | Third pilot regional leadership conference to explore ways and means of disseminating information concerning new educational media. | Norman, Oklahoma | 1960–61 | 18 |
| B-OCCg | Study of the impact of Office of Education regional leadership conferences. | Kent University | 1962 | 1 |
| DAY, James<br>B-138 | Plan for educational TV in Hawaii. | Station KQED San Francisco, California | 1961–62 | 11 |
| DeBERNARDIS, Amo<br>B-007 | Planning schools for new media. | Portland State College | 1959–61 | 31 |
| DE HAAN, Robert F.<br>BR5-0988 | Use and development of programmed materials and media in private liberal arts colleges. | Great Lakes College | 1963–65 | 213 |
| De KIEFFER, Robert<br>B-083 | Preplanning Title VII conference. | University of Colorado | 1959 | 2 |
| B-083a | Title VII research seminar, April 11-13, 1960, University of Colorado. | University of Colorado | 1960 | 20 |
| DETERLINE, William A.<br>B-479 | Instructional programming procedures, a programmed course in the basic methods and techniques of preparing programmed instructional materials. | Texas | 1963 | 83 |
| DREWS, Elizabeth<br>BR5-1349 | Summary information of film on the effectiveness of special training with audiovisuals in guidance and counseling. | Michigan State University | 1963–64 | 25 |
| DUKE, Benjamin C.<br>B-134 | Survey of educational media research in the Far East: Instructional uses and research direction – new media for instruction. | International Christian University | 1960–62 | 28 |

| NAME | PROJECT | LOCATION | DATE | AMOUNT (in thousands) |
|---|---|---|---|---|
| DURSCHLAG, Stephen P.<br>BR7-0421 | Illinois Educational TV Project. | Illinois Television Communications Commission | 1967–69 | 17 |
| EBOCH, Sidney C.<br>BR5-0264 | Implementation of research strategies and tactics for demonstrations for newer media. | Ohio State University | 1965 | 91 |
| BR5-0295 | Planning and dissemination conference on novel strategies and tactics for field studies of new educational media demonstrations. | Ohio State University | 1965 | 23 |
| ELY, Donald P.<br>B-418 | Survey of educational media research and programs in Latin America. | Syracuse University | 1965 | 4 |
| ENGAR, Keith M.<br>BR5-0301 | Utah survey on educational TV. | University of Utah | 1964 | 24 |
| EVANS, Richard I.<br>BR5-0992 | University faculty and innovation – theory, a research case history (TV) implications. A social psychological analysis in depth. | Houston Research Institute | 1965 | 26 |
| FELLOWS, James A.<br>B-450 | Educational communications system. | National Association of Educational Broadcasters | 1965 | 76 |
| FINN, James D.<br>B-069 | A study of the impact of present and predicted technological developments on education. | National Education Association Washington, District of Columbia | 1960 | 4 |
| B-069a | A planning conference for a study of the impact of present and predicted technological developments on education. | National Education Association Washington, District of Columbia | 1960 | 2 |
| B-069b | Technological development and the teaching profession (with particular reference to the New Educational Media). | National Education Association Washington, District of Columbia | 1960–63 | 212 |
| BR5-0292 | Instructional technology and media project. | University of Southern California | 1963–65 | 339 |
| FLETCHER, Scott<br>BR5-1200 | Study on the long-range financing of educational TV stations. | National Association of Educational Broadcasters | 1964–65 | 50 |
| BR7-0738 | Study to analyze and evaluate various new ETV proposals in coordination with the second national conference on the long-range financing of educational TV stations. | National Association of Educational Broadcasters | 1967 | 26 |
| FLORY, John<br>B-045 | A survey of the needs for and developments in audiovisual devices suitable for educational use. | Society for Motion Pictures and TV Engineers | 1960–63 | 24 |
| FOLEY, Walter J.<br>BR6-1502 | Educational information project. | University of Iowa | 1965–67 | 124 |
| FORSDALE, Louis<br>BR5-0297 | Production of a motion picture and accompanying manual about the emerging role of 8 mm film in education. | Columbia University | 1964–66 | 33 |
| FOSTER, J. Edwin<br>B-156 | Five publications for the dissemination of information about the new educational media. | Educational Media Council, Incorporated New York | 1961 | 4 |
| B-156a | Preparation of two manuscripts of publications for the dissemination of information about the new educational media. | Educational Media Council, Incorporated New York | 1962 | 4 |
| BR5-1341 | Series of study projects to assist in the development of national guidelines in the educational media field. | Educational Media Council, Incorporated New York | 1961–63 | 177 |
| B-157 | National directory service for new educational media materials. | Educational Media Council, Incorporated New York | 1961 | 18 |
| BR5-1199 | Pilot national directory and subdirectories for new educational media materials. | Educational Media Council, Incorporated New York | 1961–64 | 513 |
| FULTON, W. R.<br>BR5-304 | Self-evaluative checklist and criteria for evaluating educational programs. | University of Oklahoma | 1966 | 38 |

| NAME | PROJECT | LOCATION | DATE | AMOUNT (in thousands) |
|---|---|---|---|---|
| GARRY, Ralph<br>BR5-1345 | Economics of educational TV, a report on the national conference held at Brandeis University, Massachusetts. | Brandeis University | 1962–63 | 3 |
| GEMMELL, James<br>BR5-0706 | Programmed instruction for superior students in small high schools. | Clarion State College, Pennsylvania | 1963 | 136 |
| GERARD, R. W.<br>BR5-0997 | Computers and universities. A workshop conference presented by the University of California, Irvine, with the cooperation of the University of Michigan, Newport Beach, 1965. | University of California | 1965 | 21 |
| GERLACH, Vernon<br>BR5-0269 | Producing the 8mm self-instructional film, a demonstration kit. | Arizona State University | 1965–67 | 41 |
| GLASER, Robert<br>BR5-0253 | Learning research and development center. | University of Pittsburgh | 1964–68 | 400 |
| BR5-1355 | Interface between student and subject matter. | University of Pittsburgh | 1963–64 | 43 |
| GLIESSMAN, David<br>BR5-1195 | Inter-university film project-developing titles, plan of utilization, and plan of evaluation for a series of problem-centered open-ended films to be used in teacher training. | University of Missouri | 1964–66 | 18 |
| BR5-0996 | Inter-university film project – the production of five stimulus films to be used in teacher training. | University of Missouri Kansas City | 1965–66 | 94 |
| GODFREY, Eleanor P.<br>B-081 | Audiovisual equipment and materials in public schools and factors influencing their use. | Bureau of Social Science Research Washington, District of Columbia | 1960–61 | 160 |
| B-081a | Factors associated with use of audiovisual media vs. teachers in elementary and secondary schools. | Bureau of Social Science Research Washington, District of Columbia | 1963–64 | 143 |
| GOLDSTEIN, Harold<br>B-269 | National conference on the implications of the new media for the teaching of library science. | University of Illinois | 1963 | 31 |
| GOLDWYN, A. J.<br>BR5-0287 | An operating test of a pilot educational media research information center. | Western Reserve University, Ohio | 1963–65 | 143 |
| BR5-1185 | Preparation of a thesaurus of educational terms. | Western Reserve University, Ohio | 1966 | 51 |
| GREEN, Allan C.<br>BR5-1193 | Planning and design of facilities to house the current trends in instructional methods and technologies. | Rensselaer Polytechnic Institute | 1963–64 | 95 |
| GREEN, Leroy A.<br>BR5-0280 | Educational technology dissemination project; a project in selected methods of disseminating information regarding educational media by state departments of education. | Colorado State Department of Education | 1966 | 61 |
| GREENHILL, L. P.<br>B-229 | Documentary motion picture report on the Pennsylvania State University System of televised instruction. | Pennsylvania State University | 1962–63 | 21 |
| GROSSMAN, Alvin<br>BR5-0308 | Development of an educational information retrieval system for the State of California. | California State Department | 1965–67 | 209 |
| GUNN, Hartford N.<br>B-237 | Demonstration for the use of FM radio networks to facilitate the conference technique of communication among institutions of higher education. | WGBH Educational Foundation | 1961–62 | 39 |
| GUSS, Carolyn<br>(Margaret Rufsvold)<br>B-OOE | A study to determine a feasible method of establishing bibliographic control of educational audiovisual materials for the purpose of informing teachers concerning available materials and their educational utility. | Indiana University | 1959 | 5 |
| (Margaret Rufsvold)<br>B-OOEa | A conference on implementing a system for national bibliographic control of the newer educational media. | Indiana University | 1960–61 | 15 |
| HALL, Robert O.<br>B-208 | Content and pattern for the professional training, AV communication specialists. | California State College at Hayward | 1962–63 | 34 |

| NAME | PROJECT | LOCATION | DATE | AMOUNT (in thousands) |
|---|---|---|---|---|
| HAMILL, Patricia B-55 | Directory of college courses in radio and TV in school year 1957–58. | American University | 1957–58 | 5 |
| B-154 | Directory of college courses in radio and TV in school year 1961–62. | American University | 1962–63 | 5 |
| HANSON, Lincoln F. B-232a | Programs, a guide to programmed instruction materials available to educators by September, 1963. | Teachers College Columbia University | 1963–64 | 22 |
| B-232 | A guide to programmed instructional materials available to educators by September, 1962. | Teachers College Columbia University | 1962 | 11 |
| HARBY, Samuel F. B-221 | Study of audience response systems in teaching. | University of Miami Florida | 1961–62 | 5 |
| HARCLEROAD, Fred F. B-394 | Development and an educational plan for the library-audiovisual services administration building for the California State College at Hayward. | Alameda State College | 1963–64 | 25 |
| HARLEY, William G. BR7-0739 | Educational media council as a forum, dissemination, and consulting service an 18 month plan for self study operations and continuity. | Educational Media Council Washington, District of Columbia | 1967–68 | 59 |
| HARRISON, J. A. B-139 | Survey of European research in audiovisual aids. | National Committee Audio-Visual Education | 1960–62 | 21 |
| HAZARD, Patrick D. BR5-0276 | Feasibility study of the dissemination of information concerning the uses of newer communication in teaching English. | Beaver College Pennsylvania | 1966 | 18 |
| HILL, Harold BR5-0080 | Mobilization of educational media resources to assist in federal programs of education and training. | Educational Media Council Washington, District of Columbia | 1965–67 | 155 |
| HITCHCOCK, Arthur A. B-176 | National conference on guidance and the utilization of new media. | American Personnel and Guidance Association | 1961–62 | 40 |
| HOBAN, Charles F. BR5-1198 | Survey of professional journals in the field of public communication and new media. | University of Pennsylvania | 1965–67 | 59 |
| HODGKINSON, Anthony W. BR6-1535 | Investigation into the practice of screen education (the introduction of films and TV into education as an essential area of study). | Reading, Massachusetts | 1967–69 | 78 |
| HOLTZMAN, Paul D. BR5-0989 | Interdisciplinary graduate programs in communications, a descriptive study. | Pennsylvania State University | 1963–64 | 54 |
| HOMME, Lloyd E. B-487 | Demonstration of the use of self-instructional and other teaching techniques for remedial instruction of low-achieving adolescents in reading and mathematics. | TMI Institute New Mexico | 1965 | 63 |
| BR6-1530 | Use of contingency for remedial instruction of low-achieving adolescents. | Westinghouse Management Service | 1966–67 | 135 |
| HUCKLEBERRY, Alan W. B-339 | Steering committee conference to plan a 5-year elementary and secondary curriculum study using visual aids in the education of the deaf. | Ball State University Muncie, Indiana | 1963 | 2 |
| HULL, Richard BR5-0289 | Two depth seminars on current status continuous census and projected uses of TV in education for the next decade. | North Central Association of Colleges and Schools. | 1963–66 | 62 |
| HYER, Anna L. B-063 | Title VII research abstracting project. | Department of Audio-Visual Instruction | 1961–62 | 19 |
| B-063a | A 2-year educational media research abstracting project. | National Educational Association | 1963–65 | 20 |
| BR6-8424 | Educational media research abstracting. | National Educational Association | 1965 | 5 |
| INGRAHAM, Rex B-305 | Proceedings of the national conference on programmed audiovisual instruction in medical and dental education. | University of Southern California | 1963 | 12 |
| JACKSON, David M. B-072 | Two films to demonstrate the use of film techniques in teacher education. | University of Illinois | 1960–61 | 42 |

| NAME | PROJECT | LOCATION | DATE | AMOUNT (in thousands) |
|---|---|---|---|---|
| JOHNSON, Richard A.<br>BR5-1000 | Pilot demonstration of the application educational television to the inservice training needs of teacher of the mentally retarded. | Minnesota State Department of Education | 1965–66 | 12 |
| JORDAN, James<br>BR5-0273 | National instructional TV library demonstration project. | Indiana University | 1965–67 | 1,105 |
| KEMMERER, Walter W.<br>BR6-1246 | Measurement and analysis of quality impairment in the transfer of recorded TV programs. | Twin City TV Corporation Minnesota | 1966–67 | 21 |
| KEMP, Jerrold E.<br>B-191 | National workshop in educational media demonstrations. | San Jose State College | 1961–62 | 29 |
| KENT, Allen<br>B-170a | Preparation of a complete and exhaustive file of research abstracts in the educational media field. | Western Reserve University, Ohio | 1962–63 | 44 |
| B-170 | Information service of educational research materials. | Western Reserve University, Ohio | 1961–62 | 31 |
| KIEFFER, Jarold A.<br>B-152 | Role and function of radio, TV film, and the other new media in the permanent program of the national cultural center. | National Cultural Center | 1961–62 | 28 |
| KINNIEL, William T.<br>B-098, B-098a | Demonstration of the dissemination of information of new educational media by teacher demonstration teams. | Texas Educational Agency | 1962–63 | 176 |
| B-382 | State demonstration and evaluation of development pilot overhead transparencies for the subject areas of secondary science, math, English, modern foreign languages and geography. | Texas Educational Agency | 1964 | 83 |
| KOMOSKI, P. Kenneth<br>BR5-1184 | Demonstrated project of programmed TV instruction | Teachers College Columbia University | 1966 | 170 |
| BR6-2012 | Feasibility study of the potential of network TV as a distribution device for educational research information. | Teachers College Columbia University | 1966-67 | 35 |
| KONICK, Marcus<br>BR5-0271 | Demonstration model as a means to disseminate advancements in instructional uses of educational media. | State Department of Public Instruction Pennsylvania | 1965–67 | 45 |
| KNOWLTON, James Q.<br>B-297 | A socio and psycho linguistic theory of pictorial communication. | Indiana University | 1963–64 | 11 |
| KRESSE, Frederick H.<br>BR5-0710 | Material aids for teaching children, a project and evaluation multi-media kits for loan to elementary schools. | Children's Museum Boston, Massachusetts | 1964–68 | 393 |
| LAGRONE, Herbert F.<br>BR5-0278 | Project to improve the professional sequence in preservice teacher education through selective and planned use of new media. | American Association of Colleges for Teachers Education | 1963–65 | 216 |
| LANIER, Vincent<br>BR5-0229 | The uses of newer media in art education. | National Art Association Washington, District of Columbia | 1966 | 68 |
| LAWRENCE, Dick<br>BR5-0278 | Project to improve the professional sequence in preservice teacher education through selective and planned use of new media. | American Association of Colleges for Teacher Education | 1963–65 | 215 |
| LEWIS, Richard (Kemp)<br>BR5-0707 | Development of kits for presentations on educational media: Phase II. | San Jose State College | 1965–66 | 97 |
| LEYDEN, Ralph C.<br>B-245 | Planning of educational media for a new learning center. | Stephens College Missouri | 1962–63 | 16 |
| LIEBERMAN, Irving<br>B-252 | Recruitment and training of staff and support of staff dissemination activities at the American Library Association, Library 21, Exhibit Seattle World's Fair. | University of Washington | 1961–62 | 110 |
| LIPPITT, Ronald<br>BR7-0028 | Comparative study of literature on the dissemination and utilization of scientific knowledge. | University of Michigan | 1966–68 | 114 |
| LOHRER, Alice<br>B-144 | Identification and role of school libraries which function as instructional materials centers, with implications for training. | University of Illinois | 1961–62 | 32 |

| NAME | PROJECT | LOCATION | DATE | AMOUNT (in thousands) |
|---|---|---|---|---|
| LOUBRIEL, Oscar<br>B-194 | Effectiveness of two university courses. Demonstrate the effectiveness of the use of TV as a means to broaden the education of teachers in Puerto Rico. | University of Puerto Rico | 1961–62 | 54 |
| LOVE, Pauline J.<br>B-OOEb | Preparation, publication and distribution of "Guides to the Newer Educational Media, 1950–60." | American Library Association Chicago, Illinois | 1961 | 3 |
| LUMSDAINE, A. A.<br>B-057 | Experimental research on educational media. | University of California | 1960–62 | 18 |
| BR5-1340 | Editing and camera copy preparation of a manuscript on education media research methodology. | University of California | 1963 | 9 |
| LUNGAARD, Harriet<br>BR8-8050 | Revision, amplification and continuation in 1968 of compilation and distribution of the EMC directory of summer session courses on educational media in a fifth annual edition. | Educational Media Council Washington, District of Columbia | 1968–69 | 3 |
| LUNSFORD, Terry F.<br>B-284 | Northwest conference on TV in education, April 23-24, 1962. | Western Interstate Commission for Higher Education | 1962 | 3 |
| LYBRAND, William A.<br>BR7-1122 | Exemplary utilization of innovative media systems — four case studies. | American University | 1967–68 | 55 |
| McBRIDE, Jack<br>BR5-1010 | Demonstration of instructional TV program exchange by the Great Plains Regional Library. | | 1965–66 | 155 |
| McCLATCHEY, Merrill<br>B-OOD | Filmed reports on the use of new media for instructional purposes in modern foreign languages, general science, and mathematics. | National Educational TV Radio Center | 1959–63 | 117 |
| B-OODa | A filmed report of teaching practices using new instructional media for instructional purposes in the field of mathematics. | National Educational TV Radio Center | 1960–63 | 56 |
| McCLUER, V. C.<br>BR5-0302 | Feasibility of a cooperatively owned multipurpose multichannel, closed-circuit TV system for instructional materials distribution and administrative data handling. | Audio-Visual Corporation St. Louis | 1965 | 57 |
| McDONALD, L. E.<br>B-109 | Application of newer communication media in correspondence study. | University of Texas | 1961–62 | 17 |
| McGILL, John E.<br>BR5-1350 | Survey of the development and use of TV recorded materials, films, and other simulated materials for application to teacher education in extending professional laboratory experiences. | University of Illinois | 1963–64 | 9 |
| McINTYRE, Charles J.<br>BR5-0994 | Study of the implications and feasibility of the full application of technological aids to the solution of staff, space, and curriculum problems associated with a rapidly growing urban university. | University of Illinois | 1967 | 67 |
| McKENZIE, Jack<br>B-133 | TV in medical teaching and research. | Institute for Advancement of Medical Communication | 1961–63 | 46 |
| McMURRAY, Glen<br>BR5-1016 | Southern California automated cataloging project. | University of Southern California | 1964–66 | 113 |
| MALTZMAN, Edward<br>BR5-1410 | National conference of the uses of educational media in the teaching of music. | Music Education National Conference | 1965 | 74 |
| MARS, Walter J.<br>BR6-1565 | Project to improve instruction in teacher education through the increased and better use of the new educational media. | American Association of Colleges for Teacher Education | 1966–68 | 118 |
| MARTIN, Ann M.<br>BR5-1352 | Study of regional instructional media resources. | University of Pittsburgh | 1963–64 | 69 |
| MAY, Mark A.<br>BR5-0999 | Enhancements and simplifications of motivational and stimulus variables in audiovisual instructional materials. | Hamden, Connecticut | 1965 | 7 |
| MEIERHENRY, W. C.<br>BR5-1351 | Media and educational innovation, a symposium on identifying techniques and principles for gaining acceptance of research results use of newer media in education. | University of Nebraska | 1963–64 | 20 |

| NAME | PROJECT | LOCATION | DATE | AMOUNT (in thousands) |
|---|---|---|---|---|
| MEIR, Henry, W. C.<br>B-035 | Survey of the use of in-school telecast materials leading to recommendations as to their distribution and exchange. | University of Nebraska | 1960–61 | 48 |
| B-035a | Great Plains Regional instructional television library. | University of Nebraska | 1961–65 | 506 |
| BR5-0730 | Project to identify competencies needed by teachers in the use of the newer media and various approaches to achieving them. | University of Nebraska | 1965 | 18 |
| MILLER, Elwood E.<br>BR5-0281 | Development of practicable systems of film clips selection, packaging, storage, retrieval, information dissemination, distribution and projection. | Michigan State University | 1964–67 | 287 |
| MILLER, Harry L.<br>BR5-0998 | Patterns of educational use of a televised public affairs program. A study of metropolis – Creator or destroyer. | University of New York | 1966 | 23 |
| MILLS, Donald<br>BR5-1353 | Evaluation of an inservice television training program in math for elementary teachers. | | 1963–65 | 32 |
| MITZEL, Harold<br>BR5-1194 | Development and presentation of four different college courses by computer teleprocessing | Pennsylvania State University | 1964–66 | 219 |
| MOLSTAD, John (Farris)<br>B-086 | Identify and describe present organizational patterns, practices, equipment, and facilities utilized in preparation of visual materials for public school instruction and an exploration of application of recent technology to this area. | Indiana University | 1960–63 | 31 |
| MORFORD, Leslie K.<br>BR5-1139 | Study to determine the technical feasibility of interconnecting school districts in large geographic areas of low population density by electronic means for the provision of instructional and administrative services. | Central Michigan Education Department | 1966–67 | 67 |
| MORRIS, Barry<br>B-222 | Media demonstration and workshop for faculty members of teacher education institutions. | Florida State Department of Education | 961–62 | 21 |
| MUKERJI, Rose<br>BR5-0309 | National demonstration project utilizing televised materials for the formal education of culturally disadvantaged preschool children. | United Planning Organization Washington, District of Columbia | 1966 | 50 |
| BR5-0312 | National demonstration project utilizing TV materials for the formal education of culturally disadvantaged preschool children. | United Planning Organization Washington, District of Columbia | 1966 | 206 |
| MURPHY, J. Fred<br>B-306 | Report of eight dissemination conferences on the principles and practices in the uses of TV in education. | Association of College and Secondary Schools Chicago | 1961–62 | 45 |
| B-30 | The uses of television in education. | Association of College and Secondary Schools, Chicago | 1959 | 5 |
| B-30a | Report of a pilot conference on the dissemination of principles and practices in the uses of TV in education. | Association of College and Secondary Schools, Chicago | 1960–61 | 26 |
| NOEL, Francis<br>B-106 | New Educational Media (including AV education) in State Departments of Education. | University of Southern California | 1961–63 | 163 |
| BR5-0295 | States audiovisual education study, a summary report. | Sacramento State College | | 21 |
| NORBERG, Kenneth D.<br>BR5-0282 | Iconic signs and symbols in audiovisual communication, an analytical survey of selected writings and research findings. | Sacramento State College | 1966 | 17 |
| B-083b | Pilot conference to explore ways and means of disseminating findings of research on news educational media. | Sacramento State College | 1959–60 | 1 |
| B-083c | Regional research conference on new educational media. | Sacramento State College | 1960–61 | 15 |

| NAME | PROJECT | LOCATION | DATE | AMOUNT (in thousands) |
|---|---|---|---|---|
| NORTH, R. Stafford<br>BR5-1002 | Demonstration of the impact of certain instructional changes on the attitudes and practices of students and faculty. | Oklahoma Christian College | 1965–67 | 72 |
| OFIESH, Gabriel<br>BR7-1042 | State of the art study of dial access information retrieval. | Catholic University | 1967–68 | 62 |
| ORR, David B.<br>BR7-9002 | Analyses and evaluation of present and future multimedia needs in higher education. | American Institute for Research in Behavioral Sciences | 1967–68 | 100 |
| OXHANDLER, Eugene<br>B-142 | Instructional materials for teaching audio-visual courses. | Syracuse University | 1961 | 7 |
| BR5-0272 | Computer simulation of a statewide film library network, a feasibility study. | Syracuse University | 1965–66 | 57 |
| BR5-1362 | A conference to develop new dimensions for research in educational media implied by the "systems" approach to instruction. | Syracuse University | 1963–64 | 27 |
| BR7-0259 | Prototype system for a computer based statewide plan film library network – a model for operation. | Syracuse University | 1966–67 | 81 |
| PARSEY, John M.<br>B-083e | Pilot conference to explore ways and means of disseminating findings of research on new educational media. | Michigan State University | 1960 | 3 |
| B-083f | Regional work conference to develop a theoretical framework for new media research and application. | Michigan State University | 1961–62 | 25 |
| PETERSON, Edwin<br>B-214 | Pilot short-term workshops for training college teachers in the effective use of a new method of instruction in English composition using overhead projection. | University of Pittsburgh | 1961–63 | 23 |
| POMEROY, Edward<br>B-084 | National conference on teacher education and new media. | American Association of Colleges for Teacher Education | 1960–61 | 33 |
| POWER, Eugene B.<br>B-145 | Microfilm storage and dissemination of Title VII research projects. | University Microfilms Ann Arbor, Michigan | 1961–62 | 2 |
| PURPEL, David<br>BR5-0991 | Planning of an instructional media system for the Harvard Graduate School of Education. | Harvard University | 1964–65 | 25 |
| RAMEY, J.W.<br>B-133a | Preparation of a manuscript on the uses of TV in medical education. | Institute for Advancement of Medical Communication Bethesda, Maryland | 1963–64 | 4 |
| RAY, Henry W.<br>BR5-1026 | Instructional media and heuristic learning. | Centennial School District Warmister, Pennsylvania | 1965–66 | 59 |
| REID, Chandos (Margaret Gill)<br>B-050 | Theoretical framework for the development and utilization of educational media and materials. | Association for Supervision and Curriculum Development Washington, District of Columbia | 1959–60 | 18 |
| REID, Seerley<br>B-077 | U.S. Government films for public educational use; 1960. | Library of Congress | 1960–61 | 28 |
| B-077a | Preparation and publication of U.S. Government film for public educational use; 1963. | Library of Congress | 1963 | 6 |
| RICHLAND, Malcolm<br>BR5-0303 | Traveling seminar and conference for the implementation of educational innovation. | System Development Corporation, California | 1965 | 153 |
| ROBINSON, Thomas P.<br>BR5-1346 | Learning resources center for the U.S. Virgin Islands, a feasibility study. | Laboratory for Educational Materials | 1963–64 | 10 |
| RUARK, Henry C.<br>B-106b | State department of Education responsibilities for the use of new educational media in public elementary and secondary schools. | State Department of Education Salem, Oregon | 1962 | 1 |
| RUGG, K. C.<br>B-002 | Improving instruction – budgeting your audiovisual program. | Indiana University | 1959–60 | 11 |

| NAME | PROJECT | LOCATION | DATE | AMOUNT (in thousands) |
|---|---|---|---|---|
| RYANS, David G.<br>B-216 | Review and assessment of Title VII, NDEA programs. | System Development Corporation, California | 1961 | 6 |
| SCHENKKAN, R. F.<br>B-058, B-05.a | Field study in the wider use of faculty resources among a number of institutions of higher education by means of closed-circuit microwave TV. | University of Texas | 1959–62 | 12 |
| B-058b | Temp, Texas educational microwave. | University of Texas | 1963 | 370 |
| SCHEIN, Jerome<br>B-200 | Survey of visual aids in schools and classes for the deaf in the U.S. | Gallaudet College | 1961–62 | 8 |
| SCHULLER, Charles F.<br>B-085 | Conference to explore the desirability and feasibility of establishing a council of media organizations. | Michigan State University | 1960 | 3 |
| B-085a | Second conference to discuss the desirability and feasibility of establishing a council of media organizations. | Michigan State University | 1960 | 3 |
| B-085b | A conference of the educational media council. | Michigan State University | 1960–61 | 4 |
| B-118 | A survey of the audiovisual instructional programs, resources, and services of educational institutions in the State of Hawaii. | Michigan State University | 1960 | 4 |
| SCHRAMM, Wilbur<br>BR7-1123 | Summary of the research on instructional TV, and other media research relevant to it. | Stanford University | 1967 | 24 |
| BR7-0873 | ERIC Clearinghouse for educational media and technology. | Stanford University | 1967–70 | 286 |
| B-322 | Research on programmed instruction, an annotated bibliography. | Stanford University | 1962–64 | 27 |
| B-017 | Education and the new media (an expioration of needed research in educational use of the new media). | Stanford University | 1959–60 | 15 |
| B-017a | Educational TV: the next ten years. | Stanford University | 1960–61 | 53 |
| B-158 | People look at educational TV, report on and from the audiences of eight representative ETV Stations. | Stanford University | 1961–62 | 60 |
| SCHUELER, Herbert<br>BR5-1348 | Teacher education and the new media. | City College of New York | 1962–64 | 18 |
| SCOTT, Donald<br>B-118b | A survey of the audiovisual instructional programs, resources, and services of educational institutions in the State of Hawaii. | Neenah, Wisconsin | 1960 | 2 |
| SECREST, James D.<br>B-143 | Technical guide for the purchase and use of language laboratory facilities and equipment. | Electronic Industry Association Washington, District of Columbia | 1961 | 11 |
| SEIBERT, Warren F.<br>B-087 | International seminar on instructional TV. | Purdue University | 1961–62 | 33 |
| SHERMAN, Mendel<br>BR5-0265 | Study to formulate quantitative guidelines for the audiovisual communications field. | Indiana University | 1964–67 | 44 |
| SIDNELL, Robert<br>BR5-1083 | Development of self-instructional drill materials to facilitate the growth of score reading skills of student conductors. | Michigan State University | 1966–67 | 10 |
| SKELLY, Harry J.<br>B-118a | A survey of the audiovisual instructional programs, resources and services of educational institutions in the State of Hawaii. | Sacramento, California | 1960 | 2 |
| SKORNIA, Harry J.<br>B-00B | Feasibility and role of state and regional networks in educational broadcasting. | National Association of Educational Broadcasters | 1959 | 10 |
| SMITH, Dorothy<br>B-220 | Study of the problems of copyrights, royalties, compensation, and rights of teachers in the production, performance and distribution of educational TV and radio programs, educational films, and programs for teaching machines. | American Council on Education Washington, District of Columbia | 1961–62 | 68 |

| NAME | PROJECT | LOCATION | DATE | AMOUNT (in thousands) |
|---|---|---|---|---|
| STANLEY, Julian C.<br>B-236 | Curriculum guide for a course in educational media research. | University of Wisconsin | 1962 | 6 |
| STEPP, Robert E.<br>BR5-1356 | Feasibility study to investigate the instrumentation, establishment, and operation of a learning laboratory for hard-of-hearing children. | University of Nebraska | 1963–64 | 39 |
| STONE, W. George<br>B-020 | Materials list for teacher of modern foreign languages. | Modern Language Association of America | 1959 | 12 |
| SUPPES, Patrick<br>BR6-1493 | Stanford program in computer-assisted instruction. | Stanford University | 1966–67 | 1,018 |
| TANZMAN, Jack<br>B-353 | Study to explore the role and feasibility of a regional educational communications center. | Plainview Public School, New York | 1963–64 | 61 |
| TAUBER, Maurice F.<br>B-00A | Feasibility study regarding the establishment of an educational media research information service. | Teachers College Columbia University | 1959–60 | 21 |
| BR5-0231 | Conference on the use of printed and audiovisual materials for instructional purposes. | Teachers College Columbia University | 1966 | 13 |
| TAYLOR, Calvin<br>BR5-1018 | Instructional media and creativity on the Torrey Pines Conference | University of Utah | 1965 | 13 |
| TETTEMER, Clair<br>B-096 | Study of the feasibility of developing demonstration materials of classroom utilization of educational broadcasts. | National Association of Educational Broadcasters | 1960–61 | 6 |
| BR5-1012 | Pilot series of six kits of filmed and published materials illustrating proper teacher utilization of broadcast materials. | National Association of Educational Broadcasters | 1963–64 | 155 |
| THORNBLAD, Carl E.<br>BR7-0715 | Great cities research council educational communications project. | Chicago, Illinois | 1967–68 | 129 |
| TICKTON, Sidney<br>BR8-0571 | Operation of the commission on instructional technology and preparation of a report on a study of new instructional technology. | Academy for Educational Development | 1968–69 | 500 |
| USLAN, David T.<br>BR7-1143 | Feasibility of using an experimental laboratory for identifying classroom multimedia problems and requirements. | System Development Corporation Falls Church, Virginia | 1967–68 | 50 |
| VANDERMEER, A. W.<br>B-083d | Regional research conference on new educational media. | Pennsylvania State University | 1960–61 | 15 |
| VENTO, Charles<br>BR6-8910 | Systems approach for automating the cataloging and distribution of educational motion pictures. | University of Southern California | 1967–68 | 8 |
| VINSONHALER, John<br>BR5-1144 | Improving accessibility of educational materials. Retrieval of educational and psychological tests. | Michigan State University | 1966–67 | 16 |
| WAGNER, Robert W.<br>B-131 | Series of motion picture documents on communications theory and the new educational media. | Ohio State University | 1961–62 | 6 |
| BR5-0294 | Series of motion picture documents on communication theory and the new educational media. | Ohio State University | 1963–65 | 160 |
| BR6-2775 | Completion of a series of motion picture documents on communication theory and the new educational media. | Ohio State University | 1966 | 40 |
| WHALEY, Randall M.<br>B-022 | Evaluation of new curricula developments and new techniques of instruction. | National Academy of Sciences | 1959–60 | 20 |
| B-267 | Feasibility study for establishing a pilot center for analysis and demonstration of educational resources at Wayne State University. | Wayne State University | 1963–64 | 17 |
| WHITE, Harvey<br>BR5-0432 | Planning, construction, and evaluation of media for teaching high school and junior college science via TV and for use in self-instruction. | University of California | 1963–65 | 274 |

| NAME | PROJECT | LOCATION | DATE | AMOUNT (in thousands) |
|---|---|---|---|---|
| WHITE, Harvey<br>BR6-2435 | Planning, construction, and evaluation of media for teaching high school and junior college science via TV for use in self-instruction. | University of California | 1966–67 | 93 |
| WILDS, Preston<br>BR5-1145 | Demonstration of clinical programming methods and dissemination of results of self-instruction clinical problem-solving project. | Medical College of Georgia | 1966–68 | 135 |
| WILLIAMS, Catharine<br>B-354 | Development of packaged programs designed to enable groups of teachers to carry on their own inservice audiovisual instructional programs. | Ohio State University | 1963–65 | 74 |
| WILLIAMS, Don G.<br>B-066 | Motion picutre production facilities of selected colleges and universities. | University Film Foundation | 1960–62 | 26 |
| WILSON, Roy K.<br>B-161 | Conference on dissemination of information on newer educational media, report of national school public relations association. | National Education Association | 1960–61 | 3 |
| WITHERSPOON, John P.<br>BR7-1021 | Planning instructional TV facilities. | Brooks Foundation | 1967–68 | 40 |
| BR5-0995 | Educational communications system. | National Association of Educational Broadcasters. | 1966 | 145 |
| WITTICH, Walter A.<br>B-117 | Demonstration of inservice teacher training in audiovisual education via TV and related news media. | University of Wisconsin | 1960–61 | 52 |
| WOOLSEY, Frank M.<br>BR5-1358 | Conference on the uses of two-way networks in medical education. | Albany Medical College of Union University. | 1964 | 17 |
| WYMAN, Raymond<br>BR5-1344 | Study of the availability of locally produced overhead transparencies and recommendations for national distribution. | University of Massachusetts | 1964–65 | 19 |
| BR5-1014 | Study of the availability of locally produced overhead transparencies and recommendations for national distribution. | University of Massachusetts | 1965–66 | 29 |
| ZANT, James H.<br>BR5-0708 | Project for the improved use of newer educational media in elementary school mathematics. | Oklahoma State University | 1965 | 55 |

NUMERICAL INDEX TO VARIABLES EXAMINED IN TITLE VII A PROJECTS

1.0 TV, Open Broadcast
1.1 Audience Characteristics
1.2 Program preferences, educational level
1.3 Post high school guidance, health, social skills, self-concern, social relations
1.4 Post high school guidance, College preparation
1.5 In-service teacher, individualize reading instruction
1.6 Alternatives for program diversity

2.0 Educational Television
2.1 Requirements for directors
2.2 Adult illiteracy
2.3 Junior College classes
2.4 Telecast course determenants for credit enrollers
2.5 Pre-school experiences, orient, motivate
2.6 Pre-school, propensities, preferences, reactions
2.7 Pre-school, intellectual and cultural growth
2.8 Elementary school use, structural aspects, social, economic demographic
2.9 To eliminate resistance to...
2.10 Attitude change, teachers, pupils, from neutral to positive
2.11 Audience and non-viewer characteristics

3.0 TV, Closed Circuit
3.1 Complilation of directory, facilities, courses presented, sources of, number of teachers, students, pattern of utilization
3.2 Instruction, abilities grouping, location of receiving school (urban/ rural),segregation of classes (White/Negro)
3.3 Student participation, educational environment of residence halls
3.4 Role of visuals in learning
3.5 Short term effect on ability to perform mental work
3.6 Teacher/learner process
3.7 Presentation techniques, pupil stimulation
3.8 Visual techniques
3.9 Perception, eye movement related to subject and stimulus
3.10 Eye movement, grade level, intelligence, types of stimulus material
3.11 Visual continuity, visual reinforcement manipulation of visual material
3.12 Response profiles interest in TV, galvanic skin,/retention of information, attitude change
3.13 Presentation conditions for acquisition of meaningful concept
3.14 Retention, elementary students, interest attitudes
3.15 Instructional improvement, retention, transfer
3.16 Electrical signal feedback, microphone feedback, vicarious feedback
3.17 Visual content, impart facility in manual manipulations
3.18 Visual presentation, realism, non-realism literal, nonliteral
3.19 Attitudes, professor resistance to TV instruction
3.20 Biology, High School, team teaching

3.21 College algebra, teaching machine, P.I. text, film strips
3.22 Science, 5th grade, achievement gains, attitude, interest
3.23 Dental health education, college
3.24 Russian, 4-5th grade, interest, motivation
3.25 French, elementary school, teacher training
3.26 Spanish, elementary school
3.27 Foreign language, elementary school, audio tapes
3.28 Foreign language, 4th grade
3.29 Remedial speech, 3rd grade
3.30 Adult, intellectual manipulation of life experience through TV
3.31 Supplementary visual aid
3.32 Supplementary, white/Negro students, qualified, unqualified teachers, good/poor laboratories
3.33 Enrichment
3.34 Supplementition of, correspondence study, visitations by Education major students
3.35 Augment, replace conventional lab,"Strength of Materials" course
3.36 Large groups, demonstrations, college human physiology
3.37 Large screen, theater, college
3.38 Large screen, distance, angles
3.39 Video tape, use of, counseling interviews
3.40 Mass instruction
3.41 Video tape, counselor-client interaction
3.42 Study skills, college

4.0 Programmed Instruction
4.1 TV Learner participation techniques
4.2 TV Individualization of pace, external pace, self-pace
4.3 TV Economics, college
4.4 TV Speech, statistics, college
4.5 TV Learner participation teaching
4.6 TV Mechanical skills, size of demonstration unit, mode of practice
4.7 Intermediate French, combinations of auto-devices
4.8 Latin
4.9 Manual alphabet, stimulus presentation, learner response
4.10 Modern math, superior students
4.11 Automated math, summary of math, PI research
4.12 Math-5th grade, highly directed, non-directed
4.13 Gynecologic-oncology, linearly (content), branching (application)
4.14 Thinking and problem solving, Skinner's views.
4.15 Remedial English, College freshman
4.16 Relevant/irrelevant pictorial color cues in discrimination learning
4.17 PI Pictorial stimuli/transfer tasks
4.18 Russian
4.19 College math, Russian, music, chemistry, biology, religion, geology, Spanish, physics
4.20 International Phonics Transcription
4.21 Music education/adjunct taped musical selections.

4.22 Written language, for deaf children
4.23 For the deaf, correction of written language
4.24 Mentally retarded
4.25 Mentally retarded, (arithmetic), answer-construct, multiple choice
4.26 Personal counseling
4.27 Abstract thinking, optimum properties, accelerate abilities, different age levels, patterns of development.
4.28 Language learning, transfer of sense modality, relation of vision audition
4.29 Problem solving ability, behavioral development
4.30 Museum Exhibits, order of displays, active involvement, individual pacing, R. E. of successful visitor performance, effectiveness of Ed. objectives
4.31 Group learning
4.32 Grouped-paced, slow learners, feedback conditions
4.33 Group-paced, homogeneous, heterogeneous groups
4.34 Group instruction, teacher training
4.35 Group teaching device, incidental learning, intentional learning, word stimuli, cue color, cue magnitude, sex, method of focal material
4.36 Students, 2-3 at one time, by passing, review questions, pictorial reinforcement, format of frames (picture or print)
4.37 Frequency of Testing, achievement, retention
4.38 Learning processes, anxiety, creativity, intelligence
4.39 Teacher-Program relationship
4.40 Creative behavior, originality, sensitivity, flexibility, fluency of ideas
4.41 Manipulative skills, "metal Spinning"
4.42 Feedback, test anxiety level
4.43 Stimuli, words, non-wordal
4.44 Stimulus-Response associations
4.45 Methods (suitable for) ability, achievement, knowledge, conceptual attainment, effectiveness as remedial branches
4.46 Response modes, associative creativity
4.47 Revision procedures, analyze "a priori", analyze-examine student responses
4.48 Correlational analysis (of) learner/linear program, variable stimuli, ability-personality profiles
4.49 Repetition of material
4.50 Supplementary, relevant content, irrelevant content
4.51 Transfer of learning
4.52 Transfer effects, cue repetition, learning to learn, warm-up effect.
4.53 Symbolic, non-verbal responses
4.54 Branching, rules, generalizations
4.55 Administrative adjustments, instruction adjustments
4.56 Self-direction, self-evaluation
4.57 Overt responses, covert responses
4.58 Measurement procedures
4.59 Pictorial materials, non pictorial
4.60 Novelty effect
4.61 Role and conceptual materials, underachievers, normal, overachievers

4.62 Frequency of posed question, directness of cueing, directions of application required, varieties of illustration, length of time before recall/review, nature of review material
4.63 Item analysis and development
4.64 Behavioral processes
4.65 Visual presentations,achievement, transfer of learning. retention
4.66 Rote material, specialized principles
4.67 Expository presentation introduced by problem-setting questions, expository presentation only
4.68 Relationships between reinforcement and physical components of complex pictorial stimuli in discrimination learning, variables related to prior experience with pictorial stimuli used in discrimination learning
4.69 Reinforced schedules in pacing reading rate and adjusting reading behavior
4.70 Aural, visual presentations, voice, written responses
4.71 Reading only, reading and aural, almost completely aural
4.72 non-program variables
4.73 Learner control, program control
4.74 Pacing modes
4.75 Sequencing techniques
4.76 Multi-media, small steps, active response
4.77 Step size, cueing
4.78 "Prompt" definition of
4.79 Mnemonic strategies vs. P.I. without
4.80 Individualized instruction, self goals, self paced
4.81 Learning Theory, classification of prompts
4.82 Learning effect, linear programs
4.83 Application of structure of intellect
4.84 Four variations, junior high science
4.85 Mode of presentation, audio or print, combined
4.86 Techniques of review
4.87 For the blind
4.88 Negative practice, spelling
4.89 Science lab exercises
4.90 Curcuit theory to fortran college level
4.91 Relating frame difficulty to the ability of the learner
4.92 Induce production thinking using auto-instructional sequences
4.93 Effects of emotional content

5.0 Teaching Machines
5.1 Operation of audiovisual equipment
5.2 Library science, college freshman
5.3 Mental retardation
5.4 Discover, evaluate, programing principles
5.5 Mathematical model, presentation mode, rate and sequence of presentation, type of information, device complexity, programing effort, level of learning.
5.6 Logic of program sequencing, mode of student response
5.7 Social science, 11 & 12th grades
5.8 Cueing
5.9 Error rates, achievement, motivation

5.10 Science film, feedback to programmer, participation by learner, feedback to learner
5.11 Transfer factors
5.12 Personal relationship factor

6.0 Motion Films
6.1 Animated, descriptive geometry
6.2 Animation, oral histology, embryology
6.3 Sound techniques
6.4 Ethnic characterizations
6.5 Motion variables
6.6 Response, feedback, repetitive review
6.7 Volume of sound
6.8 Images, do they add to sound, controlled associations
6.9 Non-linearity
6.10 Physiological response to
6.11 Compared in effectiveness to print
6.12 Subject matter retention
6.13 Motor skills performance, change in expressed self-concepts
6.14 Inserted questions
6.15 Visualization & manipulation of 3-D mental concepts
6.16 Characteristics of film learning
6.17 Mediate, factual conceptual learning
6.18 Cine-Psychometry, A.V. memory
6.19 Contribution to factor analysis of visual cognition and memory
6.20 For testing factorial content
6.21 As test stimuli, applied to prediction of complex behavior
6.22 Preductive measurement in teacher evaluation
6.23 Change attitudes toward science and scientist
6.24 Aspirational levels, ethnocentric shifts, racial self-concepts, attitude changes
6.25 Attitude change toward college attendance
6.26 Effect on M-R's and related psychology of learning
6.27 Program analyzer, to improve television, teacher training
6.28 Enhancement for comprehension, enjoyment, identification with characters, word knowledge
6.29 Use of sponsored films
6.30 Simulation and demonstrations in dentistry
6.31 Simulation, image size, feedback mode, response made
6.32 Driver ed simulator, complex mental motor skill, immediate reinforcement
6.33 College physics, filmed demonstration
6.34 High school chemistry, physics, film, vs non-film
6.35 Algebra, high school teacher education, film of techniques
6.36 Motivation research. Films prepared with knowledge of learner's motives
6.37 Inquiry training, 5th & 6th grade, filmed physics plus tapes
6.38 Factor-analytic, study of learning
6.39 Movement and emotional involvement response
6.40 Engineering education

7.0 Simulation
7.1 Student personnel administrators, case materials
7.2 T.V., film, for counselors
7.3 Tape, audio, counselor training
7.4 Motion film, attitude change (of) Ed majors re Ed Psych topics
7.5 Change attitudes toward professional course objectives, Ed majors
7.6 Tape, filmstrips, observations, educational psychology
7.7 Student readiness for environmental learning units
7.8 Computer (to teach) engineering students
7.9 Management games

8.0 Overhead Transparencies
8.1 College engineering drawing
8.2 Deaf education

9.0 Radio
9.1 Two way radio, graduate medical education
9.2 Two way radio, graduate education participation conferences (same investigator as 9.1)
9.3 Structural drills in Spanish

10.0 Tapes, Audio
10.1 Auditory perceptual skills, retarded readers
10.2 T.V. increase student-staff contact
10.3 Creative thinking, 4th grade
10.4 Instruction, directed-detailed, directed-discovery
10.5 Audiolingual lab., improving rural speech patterns
10.6 Graduate study, Dept. of Ed
10.7 Speech improvement, primary grades
10.8 Kinds of stimuli, knowledge of results
10.9 Conventional lectures, recorded lectures
10.10 And slides, development techniques
10.11 Recording ability

11.0 Foreign Language
11.1 Laboratory, high school french
11.2 Laboratory, audio-passive, audio-active, audio-active-record
11.3 French, college, slides, tapes
11.4 French, college, film, tapes, filmstrip as enrichment
11.5 Ratio of relevant/irrelevant cues, photos, photo outline, charicature
11.6 "Sensory image types"
11.7 Visual stimuli, aural stimuli

12.0 Speech, Listening
12.1 Listening, related to learning
12.2 Speech skills, kindergarten, auditory discrimination
12.3 Instructional media, university speech course
12.4 Compressed speech, spacing, of practice session, type of material, compressed, retention
12.5 Compressed speech, speed
12.6 Compressed speech, comprehension, grade level, intelligence, amount of practice
12.7 Compressed speech, intelligibility of

13.0 Filmstrips, Slides, Graphics

13.1 Filmic media, comparison
13.2 Sound filmstrips, teacher-classroom behavior
13.3 Filmstrips, systematic improvement and effectiveness
13.4 Filmstrips, general curricular validity, existing commercial vs. active response required
13.5 Filmstrip, degrees of immediacy of knowledge of results, methods of presentation
13.6 Slides, cognitive learning, forced attention
13.7 Visuals, still, perception - reaction time
13.8 Graphic aids, spatial distribution of labels
13.9 Graphics, classified matrix of stimulus-response categories, optical, mechanical requirements
13.10 Photographs of class, positive self concepts, positive behavior, anti-social behavior
13.11 Still photographs, previous ETC material, amount of learning
13.12 Print, survey of types
13.13 Relevant/irrelevant information
13.14 Choice of elements/combinations of elements

14.0 Attitudes

14.1 Attitudes, longitudinal changes, associated with learning
14.2 Attitude change, sound-slide, films
14.3 Attitudes, A-V instruction, A-V programs, films, information dissemination
14.4 College teaching, resistence to A-V
14.5 Attitudes toward uses of newer media
14.6 Attitudes, intellectual & personality development
14.7 Learning activities, learning achieve-ent
14.8 Learning theory, student attitude, different media

15.0 Teacher Education

15.1 College teachers, T.V. effectiveness, kinds of objectives, attributes of teachers, student attitudes, achievement
15.2 How to identify effective T-V teacher
15.3 T.V. evaluation
15.4 Teacher Education, use of video tapes in
15.5 Inservice, videotape of educational psychology
15.6 Videotape observation skills
15.7 T.V. observations
15.8 Video-tape "immediate knowledge of results by analysis & discussion
15.9 Use of supervisors with video-tape, film, tapes
15.10 Observations by supervisors, audio tapes, kinescopes
15.11 T.V. teacher improvement in general science
15.12 T.V. teacher training in foreign languages
15.13 T.V. elementary teachers speech improvement, 3rd grades
15.14 T.V., elementary math
15.15 T.V. to promote favorable attitudes, improve use of A.V.s
15.16 T.V., kinescope recordings for teacher evaluation
15.17 T.V. observations for teacher effectiveness
15.18 Video recording, self-evaluations, goal setting
15.19 Kinescope recordings, student teaching, tape recordings teacher evaluation.
15.20 In service teacher education, mobile lab, T.V., film, kinescope in science & math

15.21 Assessment - co-operative use of video, state college, 16 private schools, function and value of video observation, mobile units
15.22 In-service, methods, workshops, supervisory visits, printed material, film, tapes in use of media
15.23 Use of A-V materials
15.24 Micro-teaching vs regular student teaching
15.25 Films in Ed Psych to replace direct classroom visitations
15.26 Film, slides in place of direct classroom observation
15.27 Documentary sound films
15.28 Sound film, techniques of teaching
15.29 Film simulation and printed materials
15.30 Simulation, classroom environment
15.31 Simulation, classroom problems, transfer-value, self-confidence
15.32 Modes for training, interaction analysis, classroom simulation
15.33 Classroom observation procedures, P.I., sound film, filmstrips, slides, tapes
15.34 Sound film for improvement of nonverbal communications.

16.0 Computer
16.1 CAI math, curriculum, reading, 1st grade, culturally deprived
16.2 CAI Boolean algebra, logic
16.3 CAI college physics
16.4 CAI, student individual differences, self selection of program, role of computer
16.5 CAI random vs. ordered sequencing
16.6 Computers, problem solving, grades 4-8
16.7 Computer management of educational process, systems design
16.8 Media, implementation, systems analysis, computer simulation of school organization
16.9 Systems analysis, instructional media systems
16.10 Auto-information. Retrieval, library facilities
16.11 Information retrieval, index research projects
16.12 Math instruction, stimulus sampling IBM, TV
16.13 An information system for Vocational Decisions
16.14 Educational information network

17.0 Audio-Visual, Multi-Media
17.1 A V instruction, case study
17.2 A V methods
17.3 A V instruction, film strips, motion pictures, audio-modes
17.4 A V instruction, dental school, modes of presentation
17.5 A V programs, deaf children and parent education
17.6 A V instruction, "structure of intellect", cognitive information
17.7 A V instruction, visual presentation modes, verbal presentation modes
17.8 Teaching endoscopic, modes of visualizing
17.9 Message structure, temporal dimension
17.10 Interpersonal recall techniques as a research tool
17.11 Innovation, diffusion, sociopsychological background
17.12 Mediated, science & math, T V programed instruction

17.13 IMPACT of media on school institutions
17.14 Media, comparative analysis, comparative education, cross cultural
17.15 Multi-media, syllabus for training in media perception & judgment
17.16 Student councils, A V to enrich experience of good student government
17.17 Tests as visuals & audiovisuals
17.18 Complementary, A V resource center for high school physics
17.19 Self teaching effectiveness, school, home, reading skills -- first grade
17.20 Feasibility of telelecture/electrowriter, engineering education
17.21 Telephone communications, enrichment for American government
17.22 Operational plans for regular educational media research centers
17.23 Need for & feasibility of regional ed. media research organization
17.24 Assimilation of new automated teaching methods into school instructional repertoire
17.25 Language acts for bilingual Spanish-4th grade
17.26 Modification of vocational aspirations
17.27 Literature review of research involving non-intellective factors in learning
17.28 Techniques for transmission, review of literature
17.29 Exploration of novel research designs and measurement techniques
17.30 Instructional systems development
17.31 Self-directed study groups
17.32 Educational potential of non-verbal communications
17.33 Physics for the U. S. Naval Academy
17.34 Economics for the U. S. Naval Academy
17.35 Leadership for the U. S. Naval Academy
17.36 The use of new instructional media
17.37 Criteria for evaluating media training
17.38 International uses and cross-cultural comparisons

CATEGORIZATION OF VARIABLES

The following index was generated by reading available abstracts of over 317 Part A projects.

Each project was abstracted in (a) Research in Education, report resumes, or project resumes, or (b) special editions of Title VII New Educational Media, News and Reports, an Office of Educational publication. In some cases, projects appeared in two of the three sources, very seldom in all three.

An abstract was read to identify the title of the project and to locate important descriptors. Research variables of significance to project purpose as stated in the abstract were identified and placed in the index using media type as the first general descriptor.

PROJECT DIRECTORS QUESTIONNAIRE RESPONSES

# IMPACT OF NDEA TITLE VII: PROJECT DIRECTOR'S QUESTIONNAIRE

*NOTE TO RESPONDENT:*

- *The information being requested is strictly confidential*
- *Legal liability in this regard is fully accepted by the Institute for Educational Development*
- *Personal information will not be used on an individual basis in the impact data report.*

## SECTION A

1. Name _____ Number *Percentage* N=
2. Present Title _____
3. Professional address _____

_____

4. Bachelors Degree (Major) 5 *2.3%* 221
   Masters Degree (Major) 33 *14.9%*
   Ph.D. ___ Ed.D. ___ Institution 183 *82.8%* Date ____
   Name of your Advisor (no persons mentioned consistently)
   Person who had the greatest influence on your entering the media field (no persons mentioned consistently)
5. What do you consider your field to be today? _____
   (see Addendum)
6. How long have you been (were you) active in media-related endeavors? 219

   | | | | | | |
   |---|---|---|---|---|---|
   | less than 3 years | 28 *12.8%* | 8 - 15 years | 47 *21.5%* |
   | 3 - 8 years | 65 *29.7%* | More than 15 years | 79 *36.0%* |

7. What do you identify as your current research field?
   (see Addendum)

## SECTION B

8. In how many Title VII, Part A (Research) projects were you involved? (1)-115 *68.2%/* (2)--25 *14.8%/* (3)-15 *8.9%/* (4) or more-14 *8.1%*
9. In how many Title VII, Part B (Dissemination) projects were you involved? (1)-57 *64.3%/* (2)-16 *18.6%/* (3)-7 *8.1%/* (4) or more-6 *9.0%*

10. Prior to your involvement with Title VII, your work in media activities was:

N=222

| | | |
|---|---|---|
| none -0 | 59 | 26.6% |
| only light -25-35% | 59 | 26.6% |
| a fair amount -50% | 28 | 12.6% |
| heavy -75% | 28 | 12.6% |
| all -100% | 48 | 21.6% |

11. What was your specialty prior to involvement with Title VII?

N=220

| | | |
|---|---|---|
| media research | 24 | 10.9% |
| administration | 45 | 20.5% |
| media development | 28 | 12.7% |
| psychology | 59 | 26.8% |
| curriculum | 2 | 0.9% |
| admin-media | 1 | 0.5% |
| communications | 19 | 8.6% |
| teaching | 42 | 19.1% |

12. Since your involvement with Title VII your work in media activities has been:

N=222

| | | |
|---|---|---|
| none -0 | 30 | 13.5% |
| only light -25-35% | 73 | 32.8% |
| a fair amount -50% | 43 | 19.4% |
| heavy -75% | 19 | 8.6% |
| all -100% | 57 | 25.7% |

13. If there were changes in questions 10 and 12, was Title VII the principal reason for these changes?

N=74

Yes 28 37.8% No 47 62.2%

14. If Title VII activities were not responsible for the shift in 10 and 12, can you identify what was responsible? (see Addendum)

SECTION C : *Please respond to the following series of questions in relation to the Title VII project named below:*

15. (Specific A or B project listed)

16. What percentage of your time did you devote to the project?

N=219

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 10% | 13 | 5.9% | 40% | 19 | 8.7% | 70% | 8 | 3.7% | 100% | 28 | 12.8% |
| 20% | 34 | 15.5% | 50% | 53 | 24.2% | 80% | 15 | 6.8% | | | |
| 30% | 29 | 13.2% | 60% | 8 | 3.7% | 90% | 12 | 5.5% | | | |

17. In general, the objectives of your Title VII project were accomplished:

| | | N= 222 |
|---|---|---|
| fully | 112 | 50.4% |
| fairly well | 70 | 36.1% |
| only partially | 30 | 13.5% |

18. What objectives did you have that were not accomplished?

(see Addendum)

19. Why weren't these objectives accomplished?

(see Addendum)

20. Did your project attempt to determine effectiveness on, or change any of these?

| | YES | | NO | |
|---|---|---|---|---|
| student behavior | 97 | 49.7% | 98 | 50.3% |
| student attitudes | 73 | 37.4% | 122 | 62.6% |
| teacher behavior | 58 | 29.7% | 137 | 70.3% |
| teacher attitudes | 52 | 26.7% | 143 | 73.3% |

| | YES | | NO | |
|---|---|---|---|---|
| administration attitudes | 37 | 18.9% | 158 | 81.1% |

21. What criteria were used for evaluation of impact?

| | | |
|---|---|---|
| strong objective measurement | 29 | 19.5% |
| generally objective | 43 | 28.9% |
| mostly subjective | 51 | 34.2% |
| totally subjective | 26 | 17.4% |

22. Did you develop any:

| | YES | | NO | |
|---|---|---|---|---|
| courses of study | 31 | 15.7% | 167 | 84.3% |
| curriculum guides | 31 | 15.7% | 167 | 84.3% |
| commercial devices | 12 | 6.1% | 186 | 93.9% |

| | YES | | NO | |
|---|---|---|---|---|
| textbooks | 13 | 6.6% | 185 | 93.4% |
| self-inst. materials | 72 | 36.4% | 126 | 63.6% |
| film/film strips | 20 | 11.6% | 178 | 88.4% |
| text | 9 | 4.5% | 189 | 95.5% |

23. If yes to question 22, where may these be obtained for use by others?

| | | |
|---|---|---|
| I have them for viewing and/or loan | 50 | 32.2% |
| Commercially produced by _____ | 26 | 16.8% |
| Repository (identify) _____ | 55 | 35.5% |
| Sorry, they "self-destructed" after the project was completed | 24 | 15.5% |

## SECTION D

24. I learned about the Title VII research and dissemination program through:

| | YES | | NO | |
|---|---|---|---|---|
| U.S.O.E. guidelines | 74 | 33.5% | 147 | 66.5% |
| professional publications | 56 | 25.3% | 165 | 74.7% |
| colleagues | 118 | 53.4% | 103 | 46.6% |
| professional meetings | 51 | 23.1% | 170 | 76.9% |
| others (list) _____ | 43 | 19.5% | 178 | 80.5% |

25. My access to information about Title VII proposal opportunities, in comparison to other researchers, I would judge, was:

| | | |
|---|---|---|
| better | 73 | 33.2% |
| as good as | 125 | 56.8% |
| poorer | 22 | 10.0% |

26. Information and opportunities to discuss possible proposals was:

| | | |
|---|---|---|
| seldom available | 48 | 22.9% |
| usually available | 106 | 49.0% |
| always available | 59 | 28.1% |

27. Have you had any prior experience with other federal agencies in receiving contracts, etc. for proposals? If so, please list.

YES=105 52.8%

NO = 94 47.2%

28. As far as you can compare your other federal agency relationships to Title VII, Title VII was administered:

| | | |
|---|---|---|
| better | 32 | 19.4% |
| as well as | 117 | 70.9% |
| less effectively | 16 | 09.7% |

29. What do you remember as the strong points or good practices in the administration of Title VII? *(Please rank 1, 2, 3 etc.)*

| | |
|---|---|
| guidelines for submitting proposals | (see Addendum) |
| proposal review procedures | _____ |
| communications with the O.E. staff | _____ |
| site visits | _____ |
| congeniality of the O.E. staff | _____ |
| handling of extensions | _____ |
| others (list) _____ | _____ |

30. Rank order those situations in your relationship with the U.S.O.E. Media Personnel (Title VII) which created problems or inhibited your ability to carry out your project: *(1 = most difficult, 2 = second most difficult, etc.)*

| | |
|---|---|
| delay in appropriating & funding project | (see Addendum) |
| cuts in budget | _____ |
| inflexibility in modifying objectives during project | _____ |
| vague or indecisive policy decisions | _____ |
| modification of objectives, staffing, time phase, evaluative procedures | _____ |
| too strict interpretation of contractual obligations | _____ |
| cost-sharing | _____ |
| others (identify) _____ | _____ |

_____

31. Please explain the nature of the items ranked 1 and 2 in questions 29 and 30.

(not coded - few responses)

32. In comparison to <u>other Office of Education</u> research programs [for instance, Cooperative Research, Title IV (ESEA), etc.], Title VII was administered: N=153

| | | |
|---|---|---|
| less effectively | 8 | 5.2% |
| as well as | 108 | 70.6% |
| better | 37 | 24.2% |

33. What specific suggestions would you make for strengthening management practices of programs such as Title VII?

(see management and administrative recommendations)

## SECTION E

34. Were the findings and results of your Title VII project well disseminated?

| Yes | 130 | *63.1%* | No | 76 | *36.9%* |
|---|---|---|---|---|---|

35. Did you *publicize* the results of your Title VII project in any of the following ways? Please rank order the following methods: *(1 = most used; 2 = second most used, etc.)*

| | |
|---|---|
| television | (see Addendum) |
| films | _____ |
| radio | _____ |
| closed circuit TV | _____ |
| major newspaper | _____ |
| community newspaper | _____ |
| personal talks | _____ |

36. At which of these professional meetings did you or your staff read papers regarding your Title VII project?

| | YES | | NO | | | YES | | NO | |
|---|---|---|---|---|---|---|---|---|---|
| AERA | 50 | *25.5%* | 145 | *74.5%* | NSPI | 19 | *9.7%* | 177 | *90.3%* |
| ASCD | 13 | *6.6%* | 183 | *93.4%* | Others | 89 | *45.4%* | 107 | *54.6%* |
| APA | 35 | *17.9%* | 161 | *82.1%* | _____ | | | | |
| DAVI | 68 | *34.7%* | 128 | *65.3%* | _____ | | | | |

37. Which of the following disseminated the findings of your project. How?

| | YES | | NO | |
|---|---|---|---|---|
| county offices | 10 | *5.7%* | 165 | *94.3%* |
| state agencies | 33 | *18.9%* | 142 | *81.1%* |
| national agencies | 84 | *48.0%* | 91 | *52.0%* |
| colleges or universities | 82 | *46.9%* | 93 | *53.1%* |

38. Which journals or magazines have published the results of your project?

(see Addendum)

_____

_____

_____

39. Where may a complete copy of your final report be obtained?

| | YES | | NO | |
|---|---|---|---|---|
| ERIC Clearinghouse | 82 | *41.2%* | 117 | *58.8%* |
| Title VII repository | 102 | *51.3%* | 97 | *48.7%* |
| College Library | 60 | *30.2%* | 139 | *69.8%* |
| Project Director | 41 | *20.7%* | 157 | *79.3%* |

40. How many copies of your report were printed? N=192

| | | | |
|---|---|---|---|
| 0 - 99 | 40 *20.8%* | 700 - 999 | 7 *3.6%* |
| 100 - 399 | 89 *46.4%* | 1000 + | 27 *14.1%* |
| 400 - 699 | 29 *15.1%* | | |

PLEASE ENCLOSE A LIST OF YOUR PUBLICATIONS THAT "ORIGINATED" FROM YOUR TITLE VII RESEARCH. (see Addendum)

*(Checked portions of your total publications list are acceptable)*

## SECTION F - VII PART A PROJECT RESPONDENTS ONLY

41. So far as you know, the outcomes of your Title VII A research are being translated into classroom practice. N=160

| | | | |
|---|---|---|---|
| Yes | 64 *40.0%* | No | 96 *60.0%* |

42. If you don't feel the results of your project are being translated into classroom practice, what are the reasons? *(Check those which apply)* N=109

| | |
|---|---|
| requires special personnel | 14 *12.8%* |
| requires excessive teacher training or time | 13 *11.9%* |
| effective use requires long periods of time (e.g. a school semester or year) | 9 *8.3%* |
| material difficult to obtain or not available | 33 *30.3%* |
| too expensive or space consuming | 17 *15.6%* |
| equipment or technology lag | 23 *21.1%* |
| equipment usable only with special materials | 6 *5.5%* |
| research purely theoretical in nature | 15 *13.8%* |
| still experimental | 29 *26.6%* |
| results not disseminated properly (why?) | 28 *25.7%* |
| _____ | |
| other (specify) _____ | 33 *30.3%* |
| _____ | |

VII PART B PROJECT RESPONDENTS ONLY

43. So far as you know, has your Title VII B dissemination project had a significant impact on classroom practice: N=92

| | | | |
|---|---|---|---|
| Yes | 45 *48.9%* | No | 47 *51.1%* |

44. If your Part B project (dissemination) has or has not had a significant impact on the classroom, how do you account for this?

(See Administration and Management Chapter)

## SECTION G

45. Which statement below describes, most closely, your impression of Title VII activities in general? N=198

| | | |
|---|---|---|
| planning and implementation were of a poor quality | 2 | 1.0% |
| a small portion of it had merit, but the value of activities in terms of cost is open to question | 23 | 11.7% |
| equally good and bad points, but in general contributed to improved media use | 49 | 24.7% |
| positive elements outweigh any negative, and I would gladly become a part again. | 124 | 62.6% |

46. What do you feel has been the most meaningful and significant research study in the field of educational media in the past ten years?

Name(s) of researcher(s) (no consistent pattern)

Approximate title of study

Why?

47. What Title VII (A or B) activity (or activities) has had the greatest impact on the field of educational media?

(no consistent pattern)

48. The administration and effectiveness of ten years of Title VII research and dissemination could have been improved most by:

(see administrative and management section)

49. Please check five professional journals or publications that you read on a regular basis:

N=203

| | | Rank | % of Total | |
|---|---|---|---|---|
| | AERJ | 72 | 8.6 | (4) |
| | American Psychologist | 76 | 9.1 | (3) |
| | Audiovisual Instruction | 76 | 9.1 | |
| | AVCR | 68 | 8.1 | (5) |
| | Educational Screen | 26 | 3.1 | (9) |
| | Educational Technology | 83 | 9.9 | (2) |
| | J. Educ. Psych | 55 | 6.6 | (7) |
| | J. Experimental Psych | 18 | 2.2 | |
| | NEA Journal | 59 | 7.1 | (6) |
| | NSPI Journal | 24 | 2.9 | (10) |
| | Phi Delta Kappan | 91 | 10.9 | (1) |
| | Science | 54 | 6.5 | (8) |
| | SMPTE Journal | 14 | 1.7 | |
| | T.C. Record | 16 | 1.9 | |
| | Others (list) | 94 | 11.2 | |
| | Ed. B'casting Review | 10 | 1.2 | |
| | _____ | | | |
| | _____ | | | |

*THANK YOU FOR YOUR COOPERATION IN COMPLETING THIS QUESTIONNAIRE. Information concerning the survey will be provided to all respondents.*

Listing of Answers to Specific Open-ended Questions That Elicited Statistically Quantifiable Responses.

Questions:

5. What do you consider your field to be today?

N=221

| | # | % |
|---|---|---|
| 1. Educational Technology | 59 | 26.6% |
| 2. Educational Psychology | 25 | 11.3% |
| 3. Educational Teacher Training | 5 | 2.3% |
| 4. Educational Research (General) | 23 | 10.4% |
| 5. Educational - General (all others) | 47 | 21.3% |
| 6. Psychology | 22 | 10.0% |
| 7. Research Administration | 5 | 2.3% |
| 8. Communications Research | 12 | 5.4% |
| 9. Other | 23 | 10.4% |

7. What do you identify as your current research field?

N=196

| | | |
|---|---|---|
| Administration and Organization | 5 | 2.6% |
| Curriculum | 5 | 2.6% |
| Educational Research as an Activity | 10 | 5.1% |
| Goals and Functions | 1 | 0.5% |
| Guidance to Counseling/School Psychology | 3 | 1.5% |
| Historical Development of Education | 0 | (0) |
| Personnel | 6 | 3.1% |
| Teacher-Learning Process | 37 | 18.9% |
| Media - I.T. | 62 | 31.4% |
| Testing & Measurement & Evaluation | 6 | 3.1% |
| Other Educational Research Areas | 15 | 7.7% |
| Communications | 14 | 7.1% |
| Psychology | 15 | 7.7% |
| Other | 17 | 8.7% |

(10. Prior to your involvement with Title VII, your work in media activities was:)

12. Since your involvement with Title VII, your work in media activities has been:

N=222

| | | |
|---|---|---|
| Much more involved - 2 or more steps increase | 23 | 10.4% |
| More involved - 1 step increase | 46 | 20.2% |
| No change from 10 to 12 | 127 | 57.2% |
| Less involved - 1 step decrease | 14 | 6.3% |
| Much less involved - 2 or more steps decrease | 13 | 5.9% |

14. If Title VII activities were not responsible for the shift in 10 and 12, can you identify what was responsible?

N=74

| | # | % |
|---|---|---|
| 1. Change of employment | 22 | 18.2% |
| 2. Change of personal interest | 17 | 14.1% |
| 3. Advances in research theory | 2 | 1.7% |
| 4. Title VII result/not cause | 1 | .8% |
| 5. Title VII fellowship | 1 | .8% |
| 6. Other funding | 2 | 1.7% |
| 7. Other professional commitments | 2 | 1.7% |

18. What objectives did you have that were not accomplished?

N=92

| | | |
|---|---|---|
| Research results not clear cut | 22 | 23.9% |
| Application of project outcomes | 22 | 23.9% |
| Further development of academic material for other levels | 19 | 20.7% |
| Improve prototype technique | 5 | 5.4% |
| Train teachers | 1 | 1.1% |
| Creation of measurement instruments | 2 | 2.2% |
| More complete statistical analysis/ data analysis | 5 | 5.4% |
| Dissemination objectives | 12 | 13.0% |
| Other | 4 | 4.3% |

19. Why weren't these objectives accomplished?

N=91

| | | |
|---|---|---|
| Poor planning/design or time limitations | 21 | 23.1% |
| Inadequate funds | 22 | 24.2% |
| Technical personnel inadequate | 4 | 4.4% |
| Research | 3 | 3.3% |
| Unanticipated research results | 4 | 4.4% |
| Facilities inadequate | 4 | 4.4% |
| Strong habits not easily changed/lack of implementation by participants | 8 | 8.8% |
| Lack local support | 2 | 2.2% |
| Other | 23 | 25.3% |

30. Rank order those situations in your relationship with the U.S.O.E. Media Personnel (Title VII) which created problems or inhibited your ability to carry out your project: *(1=most difficult, 2=second most difficult, etc.)*

| *RANK* | *1* | *2* | *3* | *4* | *5* | *6* | *7* | *8* |
|---|---|---|---|---|---|---|---|---|
| Delay in appropriating & funding project | | | | | | | | N=74 |
| | 47 | 13 | 6 | 3 | 5 | 0 | 0 | |
| | *63.5%* | *17.6%* | *8.1%* | *4.1%* | *6.7%* | *(0)* | *(0)* | |
| Cuts in budget | | | | | | | | N=29 |
| | 7 | 6 | 3 | 2 | 1 | 5 | 5 | |
| | *24.1%* | *19.7%* | *10.3%* | *6.1%* | *5.4%* | *17.2%* | *17.2%* | |
| Inflexibility in modifying objectives during project | | | | | | | | N=25 |
| | 8 | 1 | 4 | 6 | 3 | 3 | 0 | |
| | *32.0%* | *4.0%* | *16.0%* | *24.0%* | *12.0%* | *12.0%* | *(0)* | |
| Vague or indecisive policy decisions | | | | | | | | N=52 |
| | 18 | 14 | 9 | 6 | 1 | 3 | 1 | |
| | *34.7%* | *26.9%* | *17.3%* | *11.5%* | *1.9%* | *5.8%* | *1.9%* | |
| Modification of objectives, staffing, time phase, etc. | | | | | | | | N=37 |
| | 12 | 7 | 7 | 8 | 1 | 1 | 1 | |
| | *32.4%* | *18.9%* | *18.9%* | *21.7%* | *2.7%* | *2.7%* | *2.7%* | |
| Too strict interpretation of contractual obligations | | | | | | | | N=29 |
| | 5 | 7 | 4 | 7 | 6 | 0 | 0 | |
| | *17.2%* | *24.1%* | *13.9%* | *24.1%* | *20.7%* | *(0)* | *(0)* | |
| Cost-Sharing | | | | | | | | N=29 |
| | 5 | 7 | 3 | 2 | 1 | 4 | 6 | 1 |
| | *17.2%* | *24.1%* | *10.5%* | *6.9%* | *3.4%* | *13.8%* | *20.7%* | *3.4%* |
| Others | | | | | | | | N=41 |
| | 31 | 6 | 2 | 1 | 1 | | | |
| | *75.6%* | *14.7%* | *4.9%* | *2.4%* | *2.4%* | | | |

29. What do you remember as the strong points or good practices in the administration of Title VII? *(Please rank 1, 2, 3, etc.)*

| *RANK* | *1* | *2* | *3* | *4* | *5* | *6* | *7* |
|---|---|---|---|---|---|---|---|
| Guidelines for submitting proposals | | | | | | | N=132 |
| | 77 | 19 | 17 | 13 | 5 | 1 | 0 |
| | *58.3%* | *14.3%* | *12.9%* | *9.9%* | *3.8%* | *0.8%* | *(0)* |
| Review Procedures | | | | | | | N=97 |
| | 36 | 17 | 13 | 16 | 12 | 3 | 0 |
| | *37.1%* | *17.5%* | *13.5%* | *16.3%* | *12.5%* | *3.1%* | *(0)* |
| Communication with O.E. | | | | | | | N=149 |
| | 88 | 24 | 22 | 8 | 6 | 1 | 0 |
| | *59.1%* | *16.1%* | *14.7%* | *5.4%* | *4.0%* | *0.7%* | *(0)* |
| Visits | | | | | | | N=59 |
| | 10 | 7 | 8 | 3 | 8 | 21 | 2 |
| | *16.9%* | *11.9%* | *13.6%* | *5.1%* | *13.6%* | *35.5%* | *3.4%* |
| Congeniality | | | | | | | N=137 |
| | 73 | 28 | 15 | 14 | 6 | 1 | 0 |
| | *53.3%* | *20.4%* | *10.6%* | *10.2%* | *4.3%* | *1.2%* | *(0)* |
| Extensions | | | | | | | N=110 |
| | 53 | 12 | 17 | 6 | 13 | 8 | 1 |
| | *48.2%* | *10.9%* | *15.5%* | *5.5%* | *11.8%* | *7.3%* | *.9%* |
| Other | | | | | | | N=24 |
| | 18 | 3 | 1 | 1 | 1 | | |
| | *75.0%* | *12.5%* | *4.2%* | *4.2%* | *4.2%* | | |

35. Did you *publicize* the results of your Title VII project in any of the following ways? Please rank order the following methods: *(1=most used; 2=second most used, etc.)*

Each respondent was rated according to how many of media listed he checked (few respondents ranked the question as directed)

N=169

| | | | |
|---|---|---|---|
| 1. | television | 83 | *46.6%* |
| 2. | films | 43 | *24.2%* |
| 3. | radio | 20 | *11.2%* |
| 4. | closed circuit TV | 20 | *11.2%* |
| 5,+6. | major and community newspapers | 5 | *2.8%* |
| 7. | personal talks | 7 | *3.9%* |

38. Which journals or magazines have published the results of your project?

N=218

| | | |
|---|---|---|
| AERJ | 2 | *.9%* |
| American Psychologist | 0 | *(0)* |
| Audiovisual Instruction | 10 | *4.6%* |
| AVCR | 23 | *10.6%* |
| Educational Screen | 0 | *(0)* |
| Educational Technology | 1 | *.4%* |
| J. Educ. Psych. | 7 | *3.2%* |
| J. Experimental Psych. | 0 | *(0)* |
| NEA Journal | 0 | *(0)* |
| NSPI Journal | 0 | *(0)* |
| Phi Delta Kappan | 1 | *.4%* |
| Science | 0 | *(0)* |
| SMPTE Journal | 0 | *(0)* |
| T. C. Record | 0 | *(0)* |
| Others | 33 | *15.1%* |
| OO=None | 103 | *47.2%* |
| *Multiple Sources | 38 | *17.4%* |

*Directors who reported publication activity tended to list 3-4 publications where their material had been published.

List of Publications

Books

| | | |
|---|---|---|
| 6 people listed | one | book |
| 4 people listed | 2 | books |
| 1 person listed | 3 | books |

Articles

| | | |
|---|---|---|
| 15 people listed | 1 | article |
| 10 people listed | 2 | articles |
| 7 people listed | 3 | articles |
| 1 person listed | 4 | articles |
| 4 people listed | 5 | articles |
| 3 people listed | 6 | articles |
| 2 people listed | 7 | articles |

Monographs

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| No. of people | 13 | 5 | 6 | 4 | 2 | 1 | 1 | 2 |
| No. of Monographs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

# PROJECT DIRECTORS QUESTIONNAIRE RESPONDENTS

Adkins, Gale R.
Andereck, Paul A.
Anderson, James A.
Archer, Sidney N.
Asher, James J.
Baker, Robert L.
Barlow, John A.
Barson, John
Beach, Leslie R.
Beaird, James H.
Becker, Samuel L.
Belforte, John
Berger, Emanuel
Bern, Henry A.
Biggy, Virginia M.
Birch, Jack W.
Bixby, Paul W.
Blackman, Leonard S.
Bloodworth, Mickey
Boecklen, Warren
Boguslavsky, George W.
Bond, Jack
Bornstein, Harry
Bowen, William, M. Jr.
Brown, James W.
Brugger, John R.
Bryan, Edward F.
Bryant, Harry
Buch, John N.
Buchheimer, Arnold
Burkhart, James A.
Burriss-Meyer, Harold
Campbell, Donald T.
Campbell, Vincent N.
Campeau, Peggie L.
Carroll, John B.
Carter, Lamore, Joseph
Carter, Roy E. Jr.
Chance, Clayton
Church, John G.
Cochran, Lee W.
Cohen, David B.
Cohen, Edwin S.
Cooney, Joan, Ganz
Curtis, H. A.
Cypher, Irene F.
Davis, O. L. Jr.
Davis, Robert H.
Dawson, Marvin
Day, James
Day, Willard F.
De Bernardis, Amo
Decker, Martin G.
DeHaan, Robert F.
DeMarco, Norman
De Sola Pool, Ithiel
Devault, Vere M.
Devitt, Joseph J.
Dimling, John A. Jr.
Doetkott, Richard Paul
Duke, Benjamin C.
Durost, Walter N.
Eboch, Sidney C.
Edling, Jack V.
Engar, Keith M.
Ewing, Thomas N.
Faris, Gene
Feldmann, Shirley C.
Fellows, James A.
Flanders, Ned A.
Fleming, Malcolm L.
Foster, J. Edwin
Fritz, John D.
Frye, Charles H.
Frymire, L. T.
Gerlach, Vernon
Gilbert, James E.
Goldstein, Harold
Gordon, Oakley J.
Gottlieb, David
Green, Alan C.
Green, Leroy A.
Cuba, Egon G.
Gupta, Ram K.
Hamill, Patricia Beall
Hanson, Lincoln F.
Hanzeli, Victor E.
Harcleroad, Fred F.
Harley, William G.
Harris, Charles O.
Harrison, J. A.
Hayden, Jess Jr.
Hayes, Robert B.
Hayman, John L. Jr.
Hazard, Patrick D.
Head, Sydney W.
Herrick, Merlyn C.
Hickey, Albert E.
Hill, Harold E.
Hitchcock, Arthur A.
Hoban, Charles F.
Hodgkinson, Anthony W.
Hoffman, E. Lee
Huggins, William H.
Hull, Richard B.
Hunt, Lyman C.
Hyer, Anna L.
Jackson, David M.
Jenkins, Esther C.
Jensen, Paul H.
Johnson, Donald W.
Kagan, Norman
Kallenbach, W. Warren
Karis, Charles
Karlren, Bjorn
Kerns, Victor
Ketcham, Carl H.
Kinniel, William T. Jr.
Klein, M.
Knowlton, James Q.
Komoski, P. Kenneth
Konick, Marcus
Krauser, Arthur W.
Kress, Gerard C.
Kresse, Frederick H.
Kropp, Russell P.
Lacy, Grace N.
Lagrone, Herbert F.
Landsman, Ted
Lanier, Vincent
Levens, Alexander S.
Levin, Gerald R.
Levinson, Elias
Levonian, Edward
Leyden, Ralph C.
Lieberman, Irving
Lohrer, Alice
Loubriel, Oscar
Lowell, Edgar L.
Lungaard, Harriet
MacDonald, Neil
McBeath, Ronald J.
McIntyre, Kenneth M.
McLain, John D.
McMurray, Glenn
McNeil, John D.
Mallinson, George G.
Mars, Walter J.
Martini, Harry R.
Marzocco, Frank N.
Mathis, B. Claude
May, Mark A.
Merrill, Irving R.
Miller, Elwood E.
Miller, William C.
Moore, J. William

Morrison, Arthur H.
Nasca, Donald
Neidt, Charles O.
Nelson, Carl B.
North, R. Stafford
Orr, David B.
Painter, William I.
Parnes, Sidney J.
Parsey, John M.
Paulson, Casper F. Jr.
Perrin, Donald G.
Plumpton, Russell A.
Poling, E. Gordon
Popham, W. J.
Poulos, Chris G.
Price, James E.
Ramey, James W.
Ray, Henry W.
Rich, Owen S.
Richland, Malcolm
Ripple, Richard E.
Rossi, Peter N.
Rowlett, John D.
Rufsvold, Margaret I.
Rupiper, O. J.
Ryans, David G.
Saltzman, Irving J.
Sandefur, J. T.
Schenblian, R. F.
Schlesinger, Lawrence E.
Schuller, Charles F.
Schutz, Richard E.
Schwarzwalder, John C.
Seibert, Warren F.
Sheehan, A. Cornelia
Shell, William B.
Shemick, John M.
Short, Jerry G.
Siegel, Laurence
Siemens, Robert K.
Skelly, Harry J.
Skornia, Harry J.
Smith, Wendell I.
Snow, Richard E.
Stanley, Julian C.
Stuckless, E. Ross
Tauber, Maurice F.
Taylor, Calvin W.
Teahan, John E.
Tendam, Donald J.
Tettemer, Clair R.
Tickton, Sideny G.
Tiedeman, David V.
Tintera, James B.
Tobias, Sigmund
Torrance, E. Paul
Tosti, Donald T.
Travers, Robert M. W.
Uslan, David T.
Van Horn, Charles
Vento, Charles J.
Vlcek, Charles W.
Vuke, George J.
Warf, Dave
Wedberg, Desmond P.
Wickline, Lee E.
Wilds, Preston Lee
Williams, Catherine M.
Williams, Don G.
Witherspoon, John P.
Wittrock, M. C.
Wood, C. David
Zachert, Virginia

INSTITUTE FOR EDUCATIONAL DEVELOPMENT
999 N. SEPULVEDA BLVD · EL SEGUNDO, CALIFORNIA 90245 · (213) 772-2127

November , 1969

Dear

This letter is addressed to you as a former member of the Advisory Committee on New Educational Media.

Under a contract with the U.S. Office of Education, the Institute for Educational Development is engaged in a study of the impact on education of Title VII of the National Defense Education Act. The purpose of the study is to provide information which will assist the U.S. Office of Education, and others, in the development of programs in the future. To this end, the study includes:

1. a review of the research and dissemination activities carried out to determine the educational advances which resulted;
2. an evaluation of the strengths and weaknesses of the administrative procedures required by the law.

Since Title VII established an Advisory Committee (Advisory Committee on New Educational Media), an evaluation of the concept, role, and contribution of the Advisory Committee is an important part of the study. The Project Staff has reviewed the minutes of the meetings of the Advisory Committee, and has organized the contents into categories such as the general criteria used to evaluate projects, the indications of concern with impact, the general areas of focus, and the attendance of members (Advisory Committee and USOE). In addition to this official source of information, the Project Staff believes that comments from members of the Advisory Committee about the role of the Committee and their service would make possible a more complete evaluation of the concept and functioning of the Committee.

I also served as a member of the Committee and am assisting the Institute in examining the strengths and weaknesses of our effort, and in evolving recommendations for the improved functioning of such committees.

We should appreciate receiving your comments about the concept of an advisory committee and your service on the Title VII Committee in comparison to others on which you have served. You might wish to comment on items such as: whether the Committee performed a valuable service; whether the staff support was equal to or better than that for other programs in which you have participated; whether you felt perhaps that your functioning was at times more largely procedural than substantial; whether certain criteria were used for selection more often than others; the criteria you felt were most important for selection; whether an advisory committee with representation from fields other than the immediate professional concern (media, in the case of Title VII) provides important dimensions to the deliberations; whether the Committee dealt with broad concerns or immersed itself in detail; whether the time and expense involved was a good investment in the program; and whether the Committee received the kind of technical assistance it needed to make decisions. A frank report on your frustrations, satisfactions, and recommendations would be most helpful.

You may be assured that your reply will be held in confidence and that no statement contained in it will be attributed directly to you.

An information sheet about Title VII of the National Defense Education Act is enclosed. Our records indicate that you represented category III during 1965.

To assist us in meeting our contract responsibilities, it is important that your reply reach us by December 15th. We look forward to hearing from you.

Sincerely,

Harriet Miller

Harriet Miller
Title VII Advisory Committee (II)
Former Superintendent of Public
Instruction, State of Montana

HM:s

# AN ABRIDGED DESCRIPTION OF THE TITLE VII LEGISLATION

*INSTITUTE FOR EDUCATIONAL DEVELOPMENT*

*INFORMATION BULLETIN* *October 27, 1969*

## NATIONAL DEFENSE EDUCATION ACT

EFFECTIVE DATE: signed by President Eisenhower September 2, 1958.

## TITLE VII, NATIONAL DEFENSE EDUCATION ACT

EFFECTIVE DATE: contained in the original act, September 2, 1958.

PRESENT STATUS: merged with the Cooperative Research Act in 1968.

PURPOSE: to encourage research and experimentation in more effective utilization of television, radio, motion pictures, and related media (including by amendment in 1968, printed and published materials).

PROVISIONS

Part A: authorized the U. S. Commissioner of Education, in cooperation with the Advisory Committee on New Educational Media (through grants or contracts), to conduct, assist, and foster research and experimentation including the development of new and more effective techniques and methods

1. for utilizing and adapting motion pictures, videotapes and other audio-visual aids, film strips, slides and other visual aids, recordings (including magnetic tapes) and other auditory aids, and radio and television program scripts for such purposes;
2. for training teachers to utilize such media with maximum effectiveness; and
3. for presenting academic subject matter through such media.

Part B: authorized the commissioner to disseminate to state or local educational agencies and institutions of higher education information concerning new educational media through contracts for:

(a) studies and surveys to identify the need for increased or improved use of the new educational media;

(b) preparation and publication of catalogs, reviews, analyses of research, and such other materials as were to be useful in encouraging more effective use of the newer media;

(c) providing advice, counsel, technical assistance, and demonstrations to state and local education agencies and to institutions of higher education.

ADVISORY COMMITTEE: termed the Advisory Committee on New Educational Media

Purpose: (1) advise, consult with, and make recommendations to the Commissioner on matters relating to the utilization or adaptation of television, radio, motion pictures, printed and published materials, or related media of communication for educational purposes, and on matters of basic policy arising in the administration of Title VII

(2) review all applications for grants-in-aid under sections 541 and 542 of this title for projects of research or experimentation and certify approval to the Commissioner of any such projects which it believes are appropriate for carrying out the provisions of Title VII and

(3) review all proposals by the Commissioner to enter into contracts under this title and certify approval to the Commissioner of any such contracts which it believes are appropriate to enter into contracts under this Title.

The Commissioner may utilize the services of any member or members of the Advisory Committee in connection with matters relating to the provisions of this title, for such periods, in addition to conference periods, as he may determine.

Membership:

Commissioner of Education as chairman of the Advisory Committee

Representative of the National Science Foundation

Three individuals identified with the sciences, liberal arts or modern foreign languages in institutions of higher education (category I)

Three persons actually engaged in teaching or supervision of teaching in elementary schools, (category II)

Three individuals of demonstrated ability in the adaptation or use of the newer media in education (category III)

Three representatives of the lay public who demonstrated an interest in the problems of communication media (category IV)

Procedure:

The Advisory Committee reviewed all research proposals and certified those worthy of support to the Commissioner of Education.

Decisions of the Advisory Committee were binding in matters involving the research programs. (The Commissioner could support only those projects specifically approved by the Committee although he could withhold support from projects approved by the Committee.)

In the case of the dissemination program (Part B), the Committee's role was advisory. (Its advice was sought, but support for dissemination contracts was not contingent upon Committee approval.)

Proposals submitted under the provisions of Part A:

Abstracts and staff information sheets (including the Comments of Title VII project field readers) on each proposal and complete copies of all proposals which the field readers had recommended for approval were mailed to Advisory Committee members.

At the semi-annual meeting of the Committee, action was taken on the proposals.

Proposals submitted under the provisions of Part B:

The Advisory Committee made recommendations concerning priorities and needs for the demonstration program.

U.S.O.E. PERSONNEL QUESTIONNAIRE

I was involved with the administration of Title VII of the NDEA from _____ to _____.

My official position was _____

I reported directly to (name) _____

(title) _____

THE LEGISLATION (NDEA 1958, Title VII A & B)

Was the legislation written in a fashion that provided realistic parameters for the conduct of a program?

Were there certain limitations imposed due to the categorical nature, as contrasted to the general aid nature, of the legislation? Were there some things to be learned about media that couldn't be learned by studying media?

Did the legislation impose limitations in terms of acquisition of equipment, application projects, etc.? Were these shortcomings rectified in other legislation, for instance ESEA?

Would you say that "generally" the legislative mandate and the monies allocated were adequate to cover the requests by people in the field?

How well were the legislative objectives of the program carried out?

ORGANIZATIONAL CONSIDERATIONS

Did the Media Branch's location in the table of organization enhance the Branch's ability to carry out the intent of the legislation?

What effect, if any, did the several reorganizations within USOE have on the functioning of the Media Branch?

How did you perceive the priority of Title VII within OE in relation to other titles of the NDEA of 1958?

In which areas did you receive substantive support from the Bureau and higher levels? In which areas did you feel more support would have been helpful?

Were there good internal mechanisms for communication with other offices concerned with media?

ADMINISTRATION OF THE PROGRAM

Realizing that all of us are "understaffed" did you feel that enough staff was available to handle the job requirements adequately? What additions (types and numbers of personnel) would have been desirable?

What would you identify as the creative administrative dimensions of this program, when compared to other similar activities in USOE? Would it have been helpful if the funding for media and media-related projects throughout USOE had been coordinated through one office?

SELECTION OF PROJECTS

What do you recall as the principal criteria used for the selection of projects?

Were different criteria used for selecting projects under Parts A and B?

Were there more good proposals than monies available?

ADVISORY COMMITTEE'S ROLE

Were the four statutory categories helpful and appropriate?

Did the committee members play more of a procedural than substantive role?

Was the committee involved principally in determining funding for A projects more than for B, vice versa, or equally for both?

Who might you cite as some of the most valuable committee members?

FIELD READERS

How would you describe their role?

Could the same job have been performed by professionals assigned to USOE?

DISSEMINATION

What would you rate as the best vehicles (mechanisms) for disseminating information about the program? Least effective?

How were the project outcomes disseminated most effectively? Least effectively?

GENERAL

In your estimation which project(s) had the greatest impact in terms of the intent of the legislation?

What suggestions would you make for the improved administration and management of future programs of this nature?

## PROJECT DATA SOURCES

The acquisition and organization of the data pertaining to Title VII projects has been a difficult and time consuming task. A principal reason has been the lack of any central source of information about this program. The principal data resources utilized are identified below. Another difficulty has been the reconciliation and accounting for all 726 projects in all categories of data from the different sources.

McBee Keysort Cards - These cards were maintained by the Office of Education. Each card represents one Title VII project and generally contains the following information: grant number, date reviewed by Advisory Committee, date received, proposal number, funds granted, funds requested, state, amount expended per fiscal year, status of proposal, (e.g. approved, disapproved, granted, completed, etc.), grantee's address, transmittee's address, chief investigator's address, title of project, ammendments, remarks, duration proposed and actual beginning dates, and proposed and actual ending dates. Approximately 75% of the cards are keyed. The McBee cards file does not contain all Title VII projects. These cards cover fiscal years 1959 - 1967, but cards for all projects are not available for each year.

Bureau Cards - These data were also maintained by the Office of Education. Each card represents one Title VII project; however, not all projects are represented. The 296 cards contain the following information: bureau number, contact number, duration, legislative authority, total cost, division, account number, expenditures per fiscal year, title and institution, branch, project officer, Federal funds, local funds, investigator. In a few cases ERIC, ED or EP number cross references are given. These cards incompletely cover fiscal years 1960-1968.

Audio Visual Communication Review - Under a dissemination contract authorized by Part B of Title VII, AVCR published abstracts of every completed Title VII research (Part A) project. IED possesses the first 15 installments dated October 1963 through Fall 1967. These installments abstract 293 of the approximately 390 Part A projects.

News and Reports - The Office of Education published eight special editions of News and Reports, Title VII -- New Educational Media. These pamphlets contained abstracts prepared by the Office of Education, both Part A and B projects. Of the 726 Title VII projects, 363 are abstracted in News and Reports.

ERIC, Research in Education, Current Project Information - ERIC has published report abstracts in RIE and project abstracts in CPI. These abstracts generally contain the following information: title, author, institution affiliation, report numbers (e.g. NDEA-VII A - 134 and OE - 34025), report number bulletin (e.g. 1963, no. 40), contract descriptions, and an abstract. Not all Title VII projects have been abstracted by ERIC.

NAA - North American Autonetics, under a contract from the Office of Education, compiled the following Title VII project data: project number, fiscal year, type of institution, legislative authority, class of activity, approach design methodology, educational level of target group, topical area, subject matter, project dollars, and agency code. IED has access to this information in the form of a computer listing.

## BIBLIOGRAPHY


A 1. Allen, Dwight D. and Politzer, Robert L. *A Survey and Investigation of Foreign Language Instruction Under Conditions of Flexible Scheduling.* Stanford University: September 1966.

B 2. Allen, Dwight W. and Ryan, D. A. *Microteaching.* Reading, Mass.: Addison-Wesley, 1969.

A 3. Allen, D. W. Oakford, R. and Chatterson, L. School Scheduling--Practice and Theory. *Journal of Educational Data Processing,* Winter, 1966-67, Vol. 4, No. 1.

A 4. Allen, W. H. (Ed.). Educational Research Abstracts; Installments 1-15. *Audio Visual Communication Review,* July-August 1961 through Spring 1968.

B 5. Altman, I. and McGrath, J. E. *A Conceptual Framework for the Integration of Small Group Research Information.* Arlington, Va.: Human Science Research, Inc., 1959.

B 6. American Council of Education. *Special Report on Federal Programs.* Washington, D. C., 1963, Vol. 1, No. 6.

A 7. Amidon, Edmund and Flanders, Ned. The Effects of Direct and Indirect Teacher Influence on Dependent Prone Students. *Journal of Educational Psychology,* 1961, 52 (6) 286.

A 8. Aubertine, Horace E. New Tools for Research and Teacher Education. *Educational Television,* March 1, 1969, 9-13.


CODE:

A -- Articles - in Journals, etc.
B -- Books
G -- Government Documents & Publications
UP -- Unpublished

CODE


B 9. *Audiovisual Instruction.* Washington, D. C.: National Education Association, Department of Audiovisual Instruction, May 1967.

A 10. Ausubel, David P. and Fitzgerald, Donald. General Background and Antecedent Learning Variables in Sequential Learning. *Journal of Educational Psychology*, 1962, 53 (6), 243.

A 11. Ausubel, David P. and Fitzgerald, Donald. The Role of Discriminability in Meaningful Verbal Learning and Retention. *Journal of Educational Psychology*, 1962, 52 (5), 266.

A 12. Ausubel, David P. The Use of Advance Organizers in the Learning and Retention of Meaningful Verbal Material. *Journal of Educational Psychology*, 1960, 51 (5), 267.

B 13. Bailey, S. K. and Mosher, E. S. *E.S.E.A., The Office of Education Administers a Law.* New York: Syracuse University Press, 1968.

B 14. Berelson, B. *Graduate Education in the United States.* New York: McGraw-Hill, 1960.

A 15. Bishop, Carol H. Transfer Effects of Word and Letter Training in Reading. *Journal of Verbal Learning and Verbal Behavior*, 1964, 3 (3), 215.

A 16. Brackbill, Yvonne, Bravos, Anthony, and Starr, Raymond A. Delay-Improved Retention of a Difficult Task. *Journal of Comparative and Physiological Psychology*, 1962, 55 (6), 947.

B 17. Briggs, L. J. *Sequencing of Instruction in Relation to Hierarachies of Competence.* Washington, D. C.: American Institutes for Research, 1968.

A 18. Burns, Richard W. The Theory of Expressing Objectives. *Educational Technology*, 1967, 7 (20), 1.

B 19. Bush, Robert N. and Allen, Dwight W. *A New Design for High School Education.* New York: McGraw-Hill, 1964.

CODE

A 20. Campbell, D. T. Reforms as Experiments. *American Psychologist*, 1969, Vol. 24, 409-428.

B 21. Campbell, Donald T. and Stanley, Julian C. Experimental and Quasi-Experimental Designs for Research on Teaching. In N. L. Gage (Ed.), *Handbook of Research on Teaching*. Chicago: Rand-McNally, 1963.

A 22. Campion, Lee E. and Kelley, Clarice Y. *Occasional Paper No. 10, Studies in the Growth of Instructional Technology, II: A Directory of CCTV Installations in American Education with a Pattern for Growth*. Technological Development Project, Department of Audiovisual Instruction, National Education Association, Washington, D. C. May, 1963.

A 23. Canfield, Albert A. A Rationale for Performance Objectives. *Audiovisual Instruction*, 1968, 13 (2), 127.

B 24. Chu, Godwin C. and Schramm, Wilbur. *Learning From Television: What Research Says*. Institute for Communication Research, ERIC Clearinghouse on Educational Media & Technology, Stanford University, 1967.

A 25. Clemens, T. D. Educational Television and Title VII of the National Defense Education Act. *The American School Board Journal*, 1964, Vol. 149, No. 1.

A 26. Cohen, Wilbur J. An Idea That Grew. *American Education*, September, 1968, Vol. 4, No. 8.

G 27. *Congressional Record - House*. Washington, D. C.: 85th Congress of the United Staces, August 22, 1958.

G 28. *Congressional Record - Senate*. Washington, D. C.: 85th Congress of the United States, August 22, 1958.

B 29. Cost of Audio-Visual Instruction 1962-63/68-69. *School Management*. Greenwich, Conn.: Management Publishing Group, Inc., 1968.

A 30. Craig, Robert C. Directed Versus Independent Discovery Established Relations. *Journal of Educational Psychology*, 1956, 47 (4), 223.

CODE

A 31. Cronbach, Lee J. The Two Disciplines of Scientific Psychology. *American Psychologist*, 1957, 12 (11) 671.

A 32. Dick, Walter. Retention as a Function of Paired and Individual Use of Programmed Instruction. *Journal of Programmed Instruction*, 1963, 2 (3), 7.

G-UP 33. Derthick, L. and Stone, C. W. *Report on NDEA to members of Congress*, January 25, 1960. Unpublished audiotapes from U. S. Department of Health, Education and Welfare, Office of Education, Washington, D. C.

A 34. *Educational Product Report*. New York: Educational Products Information Exchange Institute (EPIE), December 1968 and January 1969, 2 (3 & 4).

G 35. *Enactments by the 88th Congress Concerning Education and Training, 1963-1964*. Washington, D. C.: U. S. Government Printing Office, October 1964.

G 36. *Enactments by the 89th Congress Concerning Education and Training*, First Session, 1965. Washington, D. C. U. S. Government Printing Office, 1966.

A 37. Florey, J. The Economic Impact of the Audio-Visual Field. *Journal of the Society of Motion Picture and Television Engineers, Inc.*, 1957, Vol. 66, 458-461.

A 38. Florey, J. and Hope, T. W. Scope and Nature of Nontheatrical Films in the United States. *Journal of the Society of Motion Picture and Television Engineers, Inc.*, 1959, Vol. 68, 387-392.

B 39. Forsdale, Louis. *8 mm* Sound Film and Education. Proceedings of a conference held at Teachers College on November 8, 9, and 10, 1961. New York: Bureau of Publications, Teachers College, 1962.

CODE


A 40. Gagné, Robert M. The Acquisition of Knowledge. *Psychological Review*, 1962, 69 (4) 355.

A 41. Gagné, Robert M. and Brown, Larry T. Some Factors in the Programming of Conceptual Learning. *Journal of Experimental Psychology*, 1961, 52 (4) 213.

A 42. Gentile, Ronald J. The First Generation of Computer Assisted Instruction Systems. *AV Communication Review*, 1967, 15 (1), 23.

B 43. Greenberg, Daniel S. *The Politics of Pure Science*. New York: The New American Library, Inc., 1967.

A 44. Harlow, Harry T. The Formation of Learning Sets. *Psychological Review*, 1949, 56 (1), 51.

A 45. Harris, Linda S. *Readership Study of the Review of Educational Research*. Stanford, California: Stanford University Institute for Communication Research. February 1969.

A 46. Hershberger, Wayne A. and Terry, Donald F. Delay of Self-Testing in Three Types of Programmed Texts. *Journal of Educational Psychology*, 1965, 56 (1), 22.

A 47. Hilliard, Robert L. and Wigren, Harold E. (eds.) *ITFS--Instructional Television Fixed Service (2500 Megahertz): What it is--How to Plan.* The Division of Educational Technology, National Education Association, Washington, D. C., 1967,

B 48. Holz, R. E. *The GASP Manual*. Cambridge, Mass.: Massachusetts Institute of Technology, June 1963. (Available through the author: Associate Registrar, MIT.).

G-UP 49. Hoole, W. S. *National Defense Education Act: A brief chronology*. Unpublished manuscript of study submitted to the Office of Education, U. S. Department of Health, Education and Welfare, Washington, D. C., January 1960.

A 50. Hope, T. W. Market review: Nontheatrical film and audiovisual -- 1965. *Journal of the Society of Motion Picture and Television Engineers, Inc.*, 1966, Vol. 75, No. 12, 1204-1210.

CODE


A 51. Hope, T. W. Market review: Nontheatrical film and audiovisual -- 1966. *Journal of the Society of Motion Picture and Television Engineers, Inc.*, 1967, Vol. 76, No. 10, 1264-1278.

A 52. Hope, T. W. Market review: Nontheatrical film and audiovisual -- 1967. *Journal of the Society of Motion Picture and Television Engineers, Inc.*, 1968, Vol. 77, No. 11, 1210-1220.

G 53. House of Representatives *Report No. 2157. National Defense Education Act of 1958.* Report submitted by Mr. Barden from the Committee on Education and Labor, 1958.

G 54. House of Representatives *Report No. 2688. National Defense Education Act of 1958.* Report submitted by Mr. Barden from the Committee on Education and Labor, 1958.

A 55. Hulett, J. Edward, Jr. A Symbolic Interactionist Model of Human Communication Part I. *AV Communication Review*, 1966.

G 56. Introduction to Instructional TV Fixed Service. *Federal Communications Commission Bulletin, No. 65629*, March 29, 1965, Washington, D. C.

A 57. Jenkins, Joseph, Neale, Daniel C. and Deno, Stanley L. Differential Memory for Pictures and Word Stimuli. *Journal of Educational Psychology*, 1967, 58 (5) 303.

A 58. Kaiser, Henry F. The Varimax Criterion for Analytic Rotation in Factor Analysis. *Psychometrika*, 1958, 23 (3) 187.

A 59. Knight, M. A. G. The Royal Air Force Study. *Occupation Psychology*, 1963, 37 (1), 68.

MF 60. Liechti, Harris N. *ETV and NDEA Title VII: Implementation of the New Educational Media Program by the U. S. Office of Education.* University Micro Films, 1969.

A 61. Lin, N. and Nelson, C. E. Bibliographic Reference Patterns in Core Sociological Journals, 1965-1966. *American Sociologist*, February 1969, 47-50.

CODE

A 62. Mager, Robert F. Deriving Objectives for High School Curriculum. *NSPI Journal*, 1968, 7 (3), 7.

A 63. McDonald, F. J. and Allen, D. W. Training Effects of Feedback and Modeling Procedures on Teacher Performance. *Final report of U. S. O. E. Project OE-6-10-078.* Stanford, Calif.: School of Education, Stanford University, 1967.

A 64. Mandler, George and Sarason, Seymour B. A Study of Anxiety and Learning. *Journal of Abnormal and Social Psychology*, 1952, 47 (2) 127.

B 65. March, J. G. and Simon, H. A. *Organizations.* New York: John Wiley & Sons, 1958.

G 66. May, M. A. *Enhancements and Simplifications of Motivational and Stimulus Variables in Audiovisual Instructional Materials.* Washington, D. C.: Office of Education, U. S. Department of Health, Education and Welfare, OE-5-16-006, 1965.

G 67. May, M. A. *The Role of Student Response in Learning from the New Educational Media.* Washington, D. C.: Office of Education, U. S. Department of Health, Education and Welfare, 1967.

G 68. May, M. A. *Word/Picture Relationships in Audiovisual Presentations.* Washington, D. C.: Office of Education, U. S. Department of Health, Education and Welfare, OE-5-16-006, 1965.

B 69. Merton, R. K. and Fiske, M. *The Focused Interview: A Manual of Problems and Procedures.* Glencoe, N. Y.: The Free Press, 1956.

UP 70. Mick, Colin. *Identification and Analysis of Classic Articles in Communication Research from Incidence of Citations.* (Unpublished Private Communication.)

B 71. Murphy, Judith and Gross, Ronald. *Learning by Television.* New York: The Fund for the Advancement of Education, Ford Foundation, 1966.

B 72. Naber, Richard H. *Dial-Access Information Retrieval Systems circa 1967.* Illinois: State Office of the Superintendent of Public Instruction, March 1968.

CODE


A 73. National Association of Educational Broadcasters. *Toward a Significant Difference: Final Report of the National Project for the Improvement of Televised Instruction, 1965-1968.* Washington, D. C.: NAEB, 1969.

A 74. *New York Times*, January 7, 1961 (Task Force Committee Appointed by Secretary of HEW, Arthur Fleming), p. 1.

A 75. Norberg, K. D. and Clemens, T. D. Current Developments in Communication. *Audio-Communications Review*, Fall 1959, Vol. 7, (4), 288.

A 76. Ofiesh, Gabriel D. *State-of-the-Art Dial Access Information Retrieval, Interim Report on Library Research.* Washington, D. C.: Catholic University of America, 1967.

B 77. Oppenheim, A. N. *Questionnaire Design and Attitude Measurement.* New York: Basic Book, Inc., 1966.

A 78. Otto, Wayne. The Acquisition and Retention of Paired Associates by Good, Average, and Poor Readers. *Journal of Educational Psychology*, 1961, 52 (5), 241.

A 79. Parker, Edwin B., Paisley, William J., and Garrett, Roger. *Bibliographic Citations as Unobtrusive Measures of Scientific Communication.* Stanford University Institute for Communication Research, October 1967.

B 80. Parker, William B. *The Life and Public Services of Justin Smith Morrill.* Boston: Houghton Mifflin, 1924.

A 81. Payne, David A., Krathwohl, David R., and Gordon, John. The Effect of Sequence on Programmed Instruction. *American Educational Research Journal*, 1967, 4 (2), 125.

B 82. Pinney, R. H. and Miltz, R. J. *Television Recordings and Teacher Education: New Directions.* Stanford, Calif.: Secondary Teacher Education Program, School of Education, Stanford University, 1967.

CODE

A 83. Price, W. S. and Bass, L. W. Scientific Research and the Innovative Process. *Science*, 1969, Vol. 164, 802-806.

A 84. Price, D. J. and de Sola Pool, Ithiel I. Networks of Scientific Papers. *Science*, 1965, Vol. 149, 510-515.

A 85. Pryluck, Calvin and Snow, Richard E. Toward a Psycholinguistics of Cinema. *AV Communication Review*, 1967, 15 (1), 54.

A 86. Reagan, M. D. Congress Meets Science: The Appropriations Process.. *Science*, 1969, Vol. 164, 926-931.

A 87. Robinson, W. S. Ecological Correlations and the Behavior of Individuals. *American Sociological Review*, 1950, 15 (3), 351.

A-UP 88. Rockway, Marty R. *The Interaction of Basic Science and Technology*, December 1968, (Unpublished report, Technical Training Division, Air Force Human Resources Laboratory, Lowry Air Force Base, Colorado).

A 89. Roe, Arnold. A Comparison of Branching Methods for Programmed Learning. *Journal of Educational Research*, 1962, 55 (9), 407.

A 90. Roe, K. Vlachoul, Case, H. W., and Roe, A. Scrambled Versus Ordered Sequence in Autoinstructional Programs. *Journal of Educational Psychology*, 1962, 53 (2), 101.

A 91. Rothkopf, Ernst Z. Learning From Written Instructive Materials: An Exploration of the Control of Inspection Behavior of Test-Like Events. *American Educational Research Journal*, 1966, 3 (4) 241.

A 92. Scandura, Joseph M. The Basic Unit in Meaningful Learning -- Association or Principle (Set-Function Language). *School Review*, 1967, 75 (3), 329.

G 93. *Scholarship and Loan Program.* House of Representatives, Hearings of the Subcommittee on Education of the Committee on Education and Labor, October 1957.

CODE


G 94. *Science and Education for National Defense.* Washington, D. C.: United States Senate, Committee on Labor and Public Welfare, February and March 1958.

G 95. Senate Report No. 2242. *National Defense Education Act of 1958.* Report submitted by Mr. Hill from the Committee on Labor and Public Welfare, August 8, 1958.

A 96. An Introduction to Modular Scheduling...with the Stanford School Scheduling System. *Report on Stanford School Scheduling Project.* Stanford, Calif.: Stanford University, 1968.

G 97. Simon, K. A. and Grant, V. W. *Digest of Educational Statistics.* Washington, D. C.: U. S. Department of Health, Education, and Welfare.

A 98. Skinner, B. F. Teaching Machines. *Science,* 1958, 128, 969.

A 99. Sleeman, Phillip J. and Crosswhite, Vivian. The 8 mm Film Revolution. *Audiovisual Instruction,* October 1968.

A 100. Snow, Richard E., Tiffin, Joseph, and Seibert, Warren F., Individual Differences and Instructional Film Effects. *Journal of Educational Psychology,* 1965, 56 (6) 315.

A 101. Swayze, John L. What Are You Doing About 8 mm? *Educational Product Report,* December 1968 - January 1969.

B 102. *Teaching Research: Its History and Capability.* Monmouth, Oregon: Teaching Research, a division of the Oregon State System of Higher Education, 1969.

A 103. Travers, Robert M. W. The Transmission of Information to Human Receivers. *AV Communication Review,* 1964, 12 (4), 373.

B 104. Trump, J. Lloyd. *Images of the Future.* University of Illinois: Commission on the Experimental Study of the Utilization of the Staff in the Secondary School, Urbana, 1959.

CODE

G 105. United States Congress, House of Representatives, *Document #73, The State of the Union*, 87th Congress, First Session, January 30, 1961.

G 106. United States Congress, Senate, *Committee on Labor & Public Welfare*, 87th Congress, First Session, 1961.

G 107. United States Congress, *Senate Report* No. 652, 87th Congress, First Session, 1961.

G 108. United States Congress, Senate, *Hearings Before the Subcommittee on Education and Welfare of the Committee on Labor and Public Welfare*, 88th Congress, First Session, 1963.

G 109. United States Congress, House of Representatives, *Hearings*, 88th Congress, First and Second Sessions, 1963, Vol. 3.

G 110. United States Congress, Senate, *Hearings Before the Senate Subcommittee on Labor and Public Welfare*, 89th Congress, First Session, Vols. 3 and 4, 1964.

G 111. United States Congress, House of Representatives, *Document #45*, 89th Congress, First Session, January 12, 1965.

G 112. United States Congress, House of Representatives, *Hearings Before the General Subcommittee on Education of the Committee on Education and Labor*, 89th Congress, First Session, 1965, Vol. 1, p. 82, and Vols. 2 and 3.

G 113. United States Congress, Senate, *Hearings Before the Senate Committee on Labor and Public Welfare*. 89th Congress, First Session, 1965.

G 114. United States Congress, House of Representatives, *Report No. 1178*, 89th Congress, First Session, October 19, 1965.

G 115. United States Congress, Senate, *Senate Report #673*, 89th Congress, First Session, September 1, 1965.

CODE

G 116. United States Congress, House of Representatives, *Hearings Before the General Subcommittee on Education and Labor*, 89th Congress, Second Session. Vols. 3 and 4, 1966.

G 117. United States Congress, Senate, *Hearings Before the Sub-Committee on Education of the Committee on Labor and Public Welfare*, 89th Congress, Second Session, Vols. 3, 4 and 5, 1966.

G 118. United States Congress, House of Representatives, *Hearings Before the General Subcommittee on Education and Labor*, 90th Congress, First Session, 1967.

G 119. United States Congress, Senate, *Hearings Before the Subcommittee on Education of the Committee on Labor and Public Welfare*, 90th Congress, First Session, 1967, Part 3.

G 120. United States Congress, House of Representatives, (Committee on Government Operations, Research and Technical Programs Subcommittee, staff study.). *The Use of Social Research in Federal Domestic Programs; Part II, The Adequacy and Usefulness of Federally Financed Research on Major National Social Problems*. 90th Congress, First Session, April 1967.

G 121. United States Congress, *Enactments of the 90th Congress, Concerning Education and Training*, 90th Congress, Second Session, 1968.

G 122. United States Congress, Senate, *Hearings of the Subcommittee on Education of the Committee on Labor and Public Welfare*, 90th Congress, Second Session, Vol. 1, 1968.

G 123. United States Congress, House of Representatives, *Hearings Before the Special Subcommittee on Education of the Committee on Education and Labor*, 90th Congress, Second Session, 1968.

G 124. United States Congress, House of Representatives, *Higher Education Amendments of 1968 Conference Report, #1919*, 90th Congress, Second Session, September 25, 1968.

CODE

G 125. United States Congress, Senate Committee on Labor and Public Welfare, staff. *The National Defense Education Act of 1958: A summary and analysis of the Act.* 85th Congress, Second Session. September 5, 1968.

G 126. United States Congress, *Legislative History*, ETU Facilities Act (PL 87-447) (S 205) 87th Congress, Second Session, 1961.

G 127. United States Congress, *Legislative History*, PL 87-344 (S 2393), 1961.

G 128. United States Congress, *Legislative History*, PL 88-665 (S 3060), 1964.

G 129. United States Congress, *Legislative History*, PL 89-10 (HR 2362), 1965.

G 130. United States Congress, *Legislative History*, PL 89-329 (HR 9567).

G 131. United States Congress, *Legislative History*, PL 90-129.

G 132. United States Department of Health, Education and Welfare. Office of Education. *Sources of Information on Educational Media.* Washington, D. C.: OE-34024, 1963, No. 2.

G 133. United States Department of Health, Education, and Welfare. *Annual Report.* Washington, D. C.: 1958-1968.

G 134. United States Department of Health, Education, and Welfare. *Handbook on Programs of the U. S. Department of Health, Education and Welfare. Grants-in-Aid and Other Financial Assistance Programs Administered by H. E. W.* Washington D. C.: 1967 edition.

G 135. United States Department of Health, Education, and Welfare. Office of Education. *American Education*, September 1968, Vol. 4, No. 8.

G 136. United States Department of Health, Education, and Welfare. Office of Education. *Projects Initiated Under Title VII, Part A, National Defense Education Act*, September 2, 1958-June 30, 1964. Washington, D. C.: 1964.

CODE

G 137. United States Department of Health, Education, and Welfare. Office of Education. *Projects Initiated Under Title VII, Part B, National Defense Education Act*, September 2, 1958-June 30, 1963. Washington, D. C.: 1963.

G-UP 138. United States Department of Health, Education, and Welfare. Office of Education. *Recommendations and Minutes of the Joint Meeting of: The Advisory Committee on New Educational Media and the New Educational Media Study Section.* Washington, D. C.: January 26-27, 1967. (Unpublished minutes).

G 139. United States Department of Health, Education, and Welfare. Office of Education. *Report on the National Defense Education Act, Fiscal Years 1958-1963: Summary of Programs Administered by the Office of Education Under Public Law 85-864.* Washington, D. C.: OE-1004-58-63.

G 140. United States Department of Health, Education, and Welfare. Office of Education. *Research in Education.* 1965-1968. Washington, D. C.

G 141. United States Department of Health, Education, and Welfare. Office of Education. *Report to Title VII Advisory Committee Meeting*, November 19-20, 1964. Washington. D. C.:

G-UP 142. United States Department of Health, Education, and Welfare Office of Education. *Summary and Recommendations of New Educational Media Study Section meeting.* February 24, 1967. Washington, D. C. (Unpublished manuscript).

G-UP 143. United States Department of Health, Education and Welfare. Office of Education. *Summary Minutes of the Advisory Committee on Title VII.* 1958-1968. Washington, D. C.: (Unpublished minutes).

G 144. United States Department of Health, Education, and Welfare. Office of Education. *Title VII -- New Educational Media, News and Reports.* Special Editions: July 1960, April 1961, August 1961, July 1962, February 1963, August 1963, July 1964, and July 1965. Washington, D. C.

CODE


G 145. United States Department of Health, Education, and Welfare. Office of Education. Bureau of Research. *Current Project Information.* December 1966, April 1967, May 1967, June 1967, July 1967, November 1967, April 1968, and March 1968.

B 146. Wartman, Leon A. *Closed-Circuit Television.* Howard W. Sams & Co., Inc., Indianapolis, Indiana, 1965.

G 147. Webb, Eugene J., Campbell, Donald T., Schwartz, Richard D., and Sechrest, Lee. *Unobtrusive Measures: Nonreactive Research in the Social Sciences.* Chicago: Rand McNally, 1966.

B 148. Wigren, Harold E., Ingle, Henry T., and Molenda, Mike. *A National Survey of In-School Closed-Circuit Television and Instructional Fixed Service Television.* Washington, D. C.: Division of Educational Technology, NEA Final Report, Project No. 6-2026-4-15-5, July 20, 1967.

G 149. Wilson, Charles E. *A study of the Background and Passage of the National Defense Education Act of 1958.* University of Alabama: Doctoral Dissertation, 1960. Ann Arbor, Michigan: University of Michigan.

G 150. Young, David B. *The Effectiveness of Self-Instruction in Teacher Education Modeling and Videotape Feedback.* Stanford University: Doctoral Dissertation. Ann Arbor, Michigan: University Microfilms, 1967, 68-6518.

## PROJECT PERSONNEL

### ADVISORY COMMITTEE

SIDNEY P. MARLAND, JR. (also Project Principal Investigator)

Dr. Marland is President of the Institute for Educational Development. Previously, he was Superintendent of Schools in Pittsburgh, Pennsylvania; Winnetka, Illinois; and Darien, Connecticut. He serves on the boards of National Educational Television, National Merit Scholarship Corporation, the Commission on Tests of the College Entrance Examination Board, and is past president of the Research Council of the Great Cities Program for School Improvement.

R. ANN DAVIS

Mrs. Davis is Director of Educational Media for the Virginia Beach City Public School System, Virginia Beach, Virginia. She started as an elementary school teacher and in 1958 was appointed coordinator of art and audiovisual education. She is currently vice chairman of the Audiovisual Department of the Virginia Library Association, and a member of the NEA, DAVI, and ALA, a member of the Advisory Committee for Title II for the Virginia State Board of Education.

JOHN C. HONEY

Dr. Honey is Vice President for Governmental Affairs and Research, Syracuse University. He is also director of a Syracuse University-NASA research program, and acting director of the Latin American Studies Program in the Maxwell Graduate School of Citizenship and Public Affairs. He was formerly associate director of the Institute of Public Administration, executive associate of the Carnegie Corporation of New York, and director of the Government Studies Program at the National Science Foundation.

WILLIAM J. PAISLEY

Dr. Paisley is Director of the ERIC Clearinghouse for Educational Media, Stanford University. He joined the Stanford faculty in 1965 as assistant professor of communication and research associate, Institute of Communication Research. He was a recent contributor to the Annual Review of Information Science and Technology, and his areas of interest and publication include communication research, verbal behavior, and attitude change.

ROBERT EARL STAKE

Dr. Stake is Associate Director, Center for Instructional Research and Curriculum Evaluation, and professor of educational psychology, University of Illinois. He is a consultant to the U. S. Office of Education, the Joint Council on Economic Education, and editor of the American Educational Research Association Monograph Series on Curriculum Evaluation.

DON WHITE

Don White has been in the audiovisual field for over 30 years, starting as head of the Audiovisual Service of the University of Georgia. Since 1946, he has served as executive vice-president of the National Audiovisual Association. He is currently a consultant to the U. S. Office of Education and a member of the District of Columbia Vocational Rehabilitation Council. He has served as a registered lobbyist in Washington, working primarily on educational legislation, for more than a decade.

SENIOR CONSULTANTS

C. RAY CARPENTER

Dr. Carpenter is Consultant to the President, and Research Professor of Anthropology and Psychology, University of Georgia. He is currently a member of the National Commission on Instructional Technology and of its Executive Committee. Formerly, he was director of the Division of Academic Research and Services at Pennsylvania State University.

ROBERT M. GAGNE

Dr. Gagne is a member of the faculty at Florida State University, in Educational Research. Previously, he was a professor at the University of California, Berkeley, and Princeton University. From 1962 to 1965, Dr. Gagne was the director of research of the American Institutes for Research. He is currently resident of the American Educational Research Association.

WILBUR SCHRAMM

Dr. Schramm is Director of the Institute for Communication Research, Stanford University and Professor of Communications and adjunct Professor of Education at Stanford. He is a member of the American Association for the Advancement of Science, the Association for Public Opinion Research, the American Sociological Association, and the American Psychological Association.

U.S.O.E. LIAISON TO PROJECT

ADOLPH J. KOENIG

Dr. Koenig is Chief, Organization and Administration Studies Branch, Bureau of Research, U. S. Office of Education, and has also served as chief of the Dissemination Research Branch. He has been a public school teacher and administrator and is a member of the American Association of School Administrators and the Association for Higher Education.

ANDREW R. MOLNAR

Dr. Molnar is Acting Director, Division of Higher Education, Bureau of Research, U. S. Office of Education. His prior experience includes psychological, engineering, and human factors research and he has taught at the university level. He holds membership in the American Psychological Association.

PROJECT STAFF

Director

ROBERT T. FILEP

Dr. Filep is Vice-President and Director of Studies of the Institute for Educational Development. He is vice-president of the Educational Media Council, and an advisor to the ERIC Clearinghouse on Early Childhood Education. He is a past-president of the National Society for Programmed Instruction, and has conducted a number of studies dealing with the humanistic applications of educational technology.

## Project Associates

### MARGARET C. SNYDER

Dr. Snyder is a Project Associate for the Institute for Educational Development and has been affiliated previously with the State University of New York (Washington Office), the State University of New York at Buffalo, and the African Bibliographic Center in Washington. She is a member of Pi Gamma Nu, Kappa Gamma Pi, and Gamma Pi Epsilon.

### HARRIET MILLER

Miss Miller was the Superintendent of Public Instruction in Montana from 1956 through 1968. Her memberships include the National Advisory Council on Education for Health Professions in the Public Health Service, the Advisory Committee of the Western Regional Special Education Committee and the State Advisory Council for Title I programs, Community Service and Continuing Education, Higher Education Act of 1965.

### ROBERT L. McCORNACK

Dr. McCornack is Director of Institutional Studies at San Diego State College and former Director of the Statistical Services at System Development Corporation, Santa Monica, California. He is an author of numerous articles and texts in the field of statistical measurement, and has taught educational measurement, evaluation, and statistics at number of universities.

### WILLIAM H. ALLEN

Dr. Allen has been Director of Research, Department of Cinema and is Professor of Education and Cinema, University of Southern California. He was editor of AV Communication Review for over 15 years. He has held many teaching and advisory positions in the fields of communications and education, and is a past-president of the Department of Audiovisual Education (NEA).

### ANTS A. LEPS

Mr. Leps is a free lance Editor and former member of the editorial group of the System Development Corporation. He has had experience in film production, human factors, sociology, and environmental preservation.

Research Assistants

GEORGE RAWALT

Mr. Rawalt is a Research Assistant with the Institute for Educational Development and a graduate student at the University of California in Instructional Technology. He has been a secondary school teacher at the Ventura School for Girls.

HENRY T. INGLE

Mr. Ingle is a Research Assistant with the ERIC Clearinghouse on Educational Technology and Media, Stanford University, and a doctoral candidate in education and communication. Previously, he was director, Educational Media Unit and research assistant in the Microteaching project, both at the Stanford Center for Research and Development in Teaching, School of Education.

COLIN KENNEDY MICK

Mr. Mick is a graduate student in communication research at Stanford University and has served in a number of capacities on the staff of the ERIC Clearinghouse in Educational Media.

CAROL B. ASLANIAN

Mrs. Carol Aslanian has worked on a number of projects at the Institute of Educational Development dealing with industry-education relations, the selection of educational materials and research and development models in the education products industry. After completing a Master's Degree in Elementary Education, she taught 6th and 4th grades and has also been a research assistant in Harvard's Laboratory of Human Development.

DOUGLAS CLOVIS HALL

Mr. Hall is a Research Assistant in the Graduate School of Business, Stanford University, and has served in a number of roles on the staff of the ERIC Clearinghouse in Educational Media at Stanford.